FAA Aviation news

APRIL 2002

AVIATION SAFETY FROM COVER TO COVER

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SPORT PILOT NOTICE OF PROPOSED RULEMAKING

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COVER: A Kitfox™ Lite² in flight. (Photo by Joe Brewer, courtesy of SkyStar Aircraft Corp.)

BACK COVER: Hi-Desert-Airport in Joshua Tree, CA. (H. Dean Chamberlain photo)

This issue of ***FAA Aviation News*** is bordered in black because the Aviation News Staff wish to acknowledge the 8 journalists killed in 2001 while covering the war in Afghanistan and the 2002 murder of reporter Daniel Pearl in Pakistan.

Rough wind, that moanest loud
Grief too sad for song;
Wild wind, when sullen cloud
Knells all the night long;
Sad storm, whose tears are vain,
Bare woods, whose branches strain,
Deep caves and dreary main, --
Wail, for the world's wrong!

A Dirge, by Percy Bysshe Shelley

SPORT PILOT NOTICE OF PROPOSED RULEMAKING

story and photos by H. Dean Chamberlain

SPORT PILOT FORUM • Aviation Safety Inspector Sue Gardner (also FAA's National Program Manager for Sport and Recreational Aviation) discusses the Sport Pilot Notice of Proposed Rulemaking (NPRM) at the 2002 Air Sports Expo in Ontario, California. The standing room only forum gave interested pilots and owners of light sport aircraft the chance to ask the Project Manager for the Sport Pilot/Light-Sport Aircraft Rulemaking Project—who is also one of the authors of the NPRM—about the proposed rule. The NPRM was published in the Federal Register *on Feb. 5, 2002, and has a comment period that closes May 6, 2002. Interested persons are invited to review and comment on the NPRM. The formal title of the NPRM is Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft; Proposed Rule.*

In the last issue of *FAA Aviation News*, we reported that the Sport Pilot Notice of Proposed Rulemaking (NPRM) had been published in the *Federal Register* on February 5. At that time, we were on deadline for the magazine, and we did not have time to do little more than say it was published.

In this issue, Aviation Safety Inspector Sue Gardner, the FAA National Program Manager for Sport and Recreational Aviation, discusses some highlights of the NPRM. She also tells us why it is important for everyone interested in the rule to comment on the NPRM before the comment period closes on May 6, 2002. Gardner is the Project Manager for the Sport Pilot/Light-Sport Aircraft Rulemaking Project and is one of the FAA employees named in the NPRM for further information. Steve Flanagan, an engineer and member of the Aircraft Certification Service, is listed for aircraft certification issues. Gardner, a member of the Flight Standards Service, has been working on the sport pilot concept for the past two years.

Although commonly called the Sport Pilot Rule, the formal title of the NPRM is "Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft: Proposed Rule." As outlined in the NPRM, the proposed rule, if enacted, is a major regulatory effort that crosses many areas. As stated in the rule, "This proposal addresses three major issues: Certification of light-sport aircraft; Certification of pilots and flight instructors to operate light-sport aircraft; and Certification of repairmen to maintain light-sport aircraft." As you can see, this rule has the potential of affecting many people.

First, as an FAA publication, we want to remind everyone reading this

article that the NPRM is only a notice of proposed rulemaking. As a rulemaking proposal, everyone has a right to comment on the NPRM. As you know, in the past, proposals have been accepted as written, others have been modified, and some have been withdrawn, although no one expects this NPRM to be withdrawn. But, until a final rule is published, everything outlined in the NPRM is subject to change. The more people comment on the NPRM, the better the final rule.

In some areas, the NPRM is breaking new ground by proposing to use an industry developed standard for the design of light-sport aircraft rather than the FAA's historical method of certificating aircraft by issuing an FAA type certificate for a new type of aircraft. Once an FAA type certificate is issued, FAA normally would then issue the appropriate production certificates when a manufacturer meets the appropriate FAA standards. Under the light-sport concept, FAA would recognize an industry standard instead of issuing a type certificate for the aircraft. It will be the responsibility of the industry standards oversight organization and the manufacturers to ensure light-sport aircraft meet those agreed upon consensus standards. In the case of light-sport aircraft, FAA (normally an FAA designated representative) would issue a new, special airworthiness certificate to light-sport aircraft meeting the industry consensus standard.

In addition to a special light-sport airworthiness certificate, an experimental certificate for the purpose of operating light-sport aircraft would also be established for those aircraft not meeting the standards for the special light-sport airworthiness certificate. The NPRM goes into detail explaining when and how an experimental airworthiness certificate would be issued.

Owners of so called "fat ultralights," those aircraft that don't meet the definition of a part 103 ultralight, need to review the proposed methods for getting an experimental certificate for the purpose of operating light-sport aircraft to see how they can apply for this type of experimental airworthiness certificate. After a specified date, all such aircraft will have to have some type of FAA airworthiness certificate and aircraft registration. The light-sport experimental process is one way of getting both if the aircraft meets the light-sport definitions.

Another ground breaking proposal in the NPRM is a proposal to allow certificated sport pilots to use either an FAA issued third-class medical certificate or an appropriately issued U.S. driver's license to meet the minimum medical requirement to operate a light-sport aircraft that requires a medical. Sport pilots would have to comply with any limitation on their medical or driver's license and self-certify they have no known medical condition that prohibits them from acting as pilots in command or a required crew member. Light-sport glider and balloon pilots would have to meet their respective aircraft's medical requirements.

For the latest information on the proposal, FAQ's, links to other sites, check the FAA's Internet website on sport pilot at <http://www.faa.gov/avr/afs/sportpilot/index.cfm>. The complete NPRM can also be found find on the U.S. Government Printing Office's Internet website at <www.gpo.gov> and follow the links to the February 5, 2002, *Federal Register*.

To highlight specific points of interest in the NPRM, *FAA Aviation News* interviewed Ms. Gardner.

FAA Aviation News: Ms. Gardner, why should anyone care about the NPRM?

Ms. Gardner: As outlined in the NPRM, this rulemaking effort is the culmination of about 10 years of work on the part of the general aviation community and FAA. The NPRM is designed to address that gray area that currently exists between the legal ultralight vehicles of Part 103 and the rest of aviation.

FAA Aviation News: What do you mean?

Ms. Gardner: FAA is proposing a complete rule that involves aircraft certification requirements, operation, maintenance, and manufacture of a new category of aircraft: the Light-Sport category. This new aircraft category would include airplanes, gliders, balloons, powered parachutes, weight-shift-control aircraft, and gyroplanes.

FAA Aviation News: Those look like many of the things you see at the Experimental Aircraft Association fly-in's at Sun 'n Fun in Lakeland, Florida and Oshkosh, Wisconsin.

Ms. Gardner: Yes, they are. In fact, many of these aircraft types evolved from the ultralight and hang gliding communities.

FAA Aviation News: How does the proposed rule differ from other FAA rules?

Ms. Gardner: The most significant difference is how the proposed aircraft will be certificated. Traditionally, FAA sets a certain aircraft standard. Then, manufacturers produce aircraft that meet that standard. In this new proposed rule, FAA will let those involved in the light-sport community develop a set of industry standards for light-sport use. When FAA issues a light-sport aircraft airworthiness certificate, it will be based upon the industry standard, not an FAA type certificate standard.

FAA Aviation News: Well, if that is the case, what would a light-sport aircraft be?

Ms. Gardner: As defined in the NPRM, a light-sport aircraft is one that meets the following conditions: First, it can't be a helicopter or powered-lift aircraft, nor can it be a Part 103 ultralight or another FAA certificated aircraft. So with those out of

ARAC CHAIR RECOGNIZED • Tom Gunnarson, the Executive Vice President of the United States Ultralight Association, displays the award he received from the FAA's Mike Henry, Assistant Division Manager, General Aviation and Commercial, Flight Standards Service, FAA Headquarters, during a forum session discussing the new Sport Pilot Notice of Proposed Rulemaking at the 2002 Air Sports Expo in Ontario, California. The award is in recognition of Gunnarson's efforts as Chairperson of the Aviation Rulemaking Advisory Committee's (ARAC) working group that studied and commented on earlier proposed changes to the Part 103 Ultralight regulation and the more recent Sport Pilot concept. The multi-year effort culminated in the release of the Sport Pilot notice of proposed rulemaking on February 5.

the way, a light-sport aircraft is one that has a maximum takeoff weight of 1,232 pounds or 560 kilograms or, for lighter-than-air aircraft, a maximum gross weight of 660 pounds or 300 kilograms. It is limited to a maximum airspeed in level flight with maximum continuous power of 115 knots calibrated airspeed under standard atmospheric conditions. If it is a glider, its maximum never-exceed speed is 115 knots calibrated airspeed. The maximum stalling speed or minimum steady flight speed in the landing configuration is 39 knots CAS. The maximum stalling speed or minimum steady flight speed without the use of lift enhancing devices is 44 knots CAS.

FAA Aviation News: That keeps a light-sport aircraft relatively slow.

Ms. Gardner: Yes, it does. That's the idea for a light-sport aircraft designed for sport and recreation.

FAA Aviation News: What other requirements must be met for an aircraft to be a light-sport aircraft?

Ms. Gardner: It is limited to a maximum seating capacity of two including the pilot. If it is powered, the engine must be a single, non-turbine engine. It can have a fixed or ground-adjustable propeller, if it is powered. If it is a gyroplane, it is limited to a fixed-pitch, semi-rigid, teetering, two-blade rotor system.

FAA Aviation News: Are there anymore requirements?

Ms. Gardner: Yes, if it has a cabin, and many of these wouldn't, the cabin must be non-pressurized. If it's a land aircraft, it must have fixed landing gear. If it is a seaplane, it can have a retractable landing gear.

FAA Aviation News: Can someone strap one of those powered parachutes on his or her back and qualify as a light-sport aircraft?

Ms. Gardner: No, they can't. Although a cabin is not required, some type of fuselage is required. A backpack type of engine doesn't qualify.

FAA Aviation News: Before we talk about what someone must do to fly a light-sport aircraft, can you briefly explain why FAA issued the NPRM?

Ms. Gardner: The need for the NPRM grew out of the FAA's Part 103 regulation. For those not familiar with

that rule, in the early 1980's, FAA established a definition of "ultralight vehicle" in the regulations for certain types of single occupant aircraft that met a weight, speed, and, if powered, a fuel quantity limitation. These vehicles were to be used for sport and recreation only. Aircraft meeting the requirements outlined in Part 103, would be considered ultralight vehicles under the regulations. Part 103 highlights included no training requirement, no pilot's certificate requirement, no medical requirement, and no FAA type certificate was required to build the vehicles.

FAA Aviation News: Well, if we had Part 103 and the traditional FAA aircraft and pilot regulations, why did industry and FAA need another set of regulations? Don't we have enough regulations now?

Ms. Gardner: Over the last 20 years, many of the ultralight vehicles started to exceed the Part 103 definition of an ultralight vehicle. When this happened, manufacturers and owners, for various reasons, did not register and apply for an airworthiness certificate for what had become unregistered aircraft once they no longer met the definition to be an ultralight vehicle. Within the industry, these unregistered aircraft became known as "fat ultralights." In many cases, these "fat ultralights" were being flown by non-certificated pilots some of whom could not pass a third-class medical physical.

Often, these non-certificated pilots were now flying two-place "fat ultralight" vehicles with passengers onboard. In the mid-1990's, FAA developed both the recreational pilot rule and the primary category rule to help meet the need for a simpler and lower cost way for people to fly for sport and recreation. However, these two rules were not as successful as some had hoped. This NPRM addresses many of the safety issues and limitations resulting from the "fat ultralights" that grew out of Part 103 over the last 20 years as well as some of the limitations of the recreational pilot and primary category rules.

FAA Aviation News: You have provided an overview of the NPRM, can you briefly tell us about what pilots must do to fly a light-sport aircraft?

Ms. Gardner: The NPRM outlines the new certification and training requirements for students, pilots, and flight instructors wanting to fly light-sport aircraft. Because this NPRM involves "fat ultralights" and other types of aircraft currently not certificated, the NPRM has special provisions for crediting certain types of training received in ultralights. The NPRM also has provisions for training given in ultralights under one of the special FAA training exemptions that permits the use of two-place ultralight vehicles for training purposes only. This special training exemption was given by FAA to improve ultralight training safety by allowing a new ultralight pilot to receive training from a flight instructor recognized by one of the approved organizations. The exemption permitted two-place aircraft to be used and operated as ultralight vehicles under the approval of one of the three organizations. The NPRM now recognizes both that training and those vehicles and provides for both under the proposed rule.

FAA Aviation News: What do you mean?

Ms. Gardner: The rule recognizes that training within limitations. The limitations are outlined in the NPRM. Then, the NPRM sets up two important windows or dates for the two-place vehicles used under the FAA exemption. Since all "fat ultralights" and other unregistered aircraft will have to be registered and issued airworthiness certificates and flown by certificated pilots after a date specified in the final rule, owners of two-place vehicles operated under the current training exemption will be permitted to continue training ultralight pilots for 36 months. At the end of that 36-month period, the current exemption process would terminate and both the instructor and aircraft would then have to meet the appropriate requirements of the rule. The aircraft would have to become light-sport aircraft and the instructor would have to become an FAA certificated pilot and flight instructor if not already one.

FAA Aviation News: What type of pilot ratings would there be for someone interested in becoming a sport pilot?

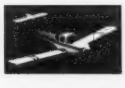
Ms. Gardner: The NPRM follows the current pilot training requirements. There would be a student pilot certificate to operate light-sport aircraft. Since powered parachutes and weight-shift aircraft are new, special maneuvers will have to be developed for these type aircraft. But in general, student sport pilot training will parallel current student training. There would be required ground and flight training with specific knowledge and practical tests. One difference with sport pilot ratings is the idea of light-sport aircraft category or class and make and model specific training endorsements.

Once a student sport pilot met the required training, the student would take the sport pilot test as outlined in the NPRM. Since this rating is for sport and recreation only, there is no commercial sport pilot certificate.

Anyone interested in becoming a sport pilot instructor would have to hold a sport pilot certificate and meet the appropriate sport pilot flight instructor requirements.

One thing unique about the sport pilot concept is the use of one-time logbook endorsements for specific sport category and class requirements as well as specific make and model endorsements by authorized sport pilot flight instructors. This contrasts with the current FAA type certificate concept for other types of aircraft issued by designated examiners.

FAA Aviation News: So, sport pilot flight training is pretty simple compared to other types of flight training. Let's shift gears a moment, what can you tell us about the maintenance



of light-sport aircraft?

Ms. Gardner: Well, in keeping with the concept of simple aircraft for sport and recreation, the NPRM outlines who can maintain a light-sport aircraft and what maintenance is required.

First, as certificated aircraft, maintenance will have to be performed. For the standard, special light-sport aircraft, maintenance requires either an FAA certificated mechanic or someone who has completed the specialized training outlined in the NPRM. Of course, experimental light-sport aircraft maintenance requirements are similar to the current experimental regulations. Proposed changes to Part 65 outlines how someone can apply to become an FAA designated repairman (light-sport). This rating would include inspection and maintenance ratings. This new rating would allow light-sport aircraft owners and operators to maintain their own aircraft.

Like the pilot training requirements, the proposed maintenance training and authorizations are very category and make and model specific.

FAA Aviation News: What other major rules are affected by the NPRM? We have covered aircraft certification, pilot training, and maintenance training.

Ms. Gardner: The NPRM also will change parts of 91. For example, Part 91 will be modified to include the use of operating limitations for light-sport aircraft. These will describe what a light-sport aircraft can and can't do and where they may operate. In addition, Part 91 will be modified to establish new right of way rules and other procedures for the two new proposed aircraft categories: powered parachutes and weight-shift control aircraft.

FAA Aviation News: From your comments, it is apparent that this is a major rulemaking effort. It is easy to see why it has taken about 10 years to get it to the NPRM stage.

Ms. Gardner: Yes, it has been a major effort. Without the support of industry, particularly the ultralight and experimental communities, and everyone within FAA's Aircraft Certification Service, Office of Rulemaking, the Small Aircraft Directorate in Kansas City, and the Flight Standards Service's Continuing Airworthiness Division and the General Aviation and Commercial Division among others, this NPRM would never have been released. The NPRM is a result of a lot of hard work by many people over a very long period of time. The Aviation Rulemaking Advisory Committee working group that reviewed Part 103 and later the Sport Pilot Concept was critical to the success of this project. Over the years, the insight and comments provided by the ARAC helped develop this NPRM and provided FAA invaluable information and industry comment. We want to thank everyone involved in this NPRM for all of their help and efforts over the years.

HOW TO COMMENT ON THE NPRM BEFORE THE MAY 6, 2002 DEADLINE

NOTE: The docket number for this NPRM is FAA-2001—11133; notice number 02—03. This docket number must be included in all of your comments as explained below. The official title of this NPRM is "Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft."

The following information is from the NPRM: SUMMARY. The FAA is proposing requirements for the certification, operation, maintenance, and manufacture of light-sport aircraft. Light-sport aircraft are often heavier and faster than ultralights and include airplanes, gliders, balloons, powered parachutes, weight-shift- control aircraft, and gyroplanes. This action is necessary to address advances in sport and recreational aviation technology, gaps in the existing regulations, and several petitions for rulemaking and for exemptions from existing regulations. The intended effect of this action is to provide for the manufacture of safe and economical aircraft and to allow operation of these aircraft by the public in a safe manner.

DATES: Send your comments on or before May 6, 2002.

ADDRESSES: Address your comments to the Docket Management System, U.S. Department of Transportation, Room Plaza 401, 400 Seventh St., SW., Washington, DC 20590-0001.

You must identify the docket number at the beginning of your comments, and you should submit two copies of your comments. You may also submit comments through the Internet to <http://dms/ dot.gov>. You may review the public docket containing comments to these proposed regulations in person in the Dockets Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Dockets Office is on the plaza level at the Department of Transportation building at the address above. Also, you may review public dockets on the Internet at <http://dms.dot.gov>.

For Further Information Contact

Susan Gardner at (202) 267-5008 for questions regarding airman certification and operational issues (14 CFR parts 1, 43, 45, 61, 65, and 91). For questions regarding aircraft certification (14 CFR part 21), call Steve Flanagan at (202) 267-5008. Due to the large volume of questions we expect from this proposal, please leave a message and we will answer your questions within three days. Please use this phone number for questions only. If you wish to submit a public comment, please review the procedures below to ensure that your comments are included in the docket.

Public Comment Procedures

The FAA invites you to participate in this rulemaking action by submitting written data, views, or arguments. We also invite comments relating to the environmental, energy, federalism, or economic impact that might result from adopting the proposals in this document. Substantive comments should contain cost estimates. In your comments, identify the regulatory docket or notice number you are commenting on. Submit them in duplicate to the DOT Rules Docket address specified above. We will file in the docket all comments received, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking.

The docket is available for public inspection before and after the comment closing date. We will consider all comments received on or before the closing date before taking action on this proposed rulemaking. We will consider comments filed late as far as possible without incurring expense or delay. We may change the proposals in this document in response to comments.

If you want FAA to acknowledge receipt of your comments include a pre-addressed, stamped postcard. In the message area, identify the document you are commenting on by notice or docket number. We will date stamp the postcard and mail it to you.

We also anticipate holding an electronic public meeting during the comment period. You will be able respond on-line via the Internet to questions that we will ask you regarding this proposal. We will publish a notice in the *Federal Register* shortly announcing more details about this virtual public meeting.

Availability of Rulemaking Documents

You can get an electronic copy of this document from the Internet by taking the following steps:

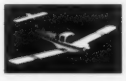
(1) Go to the search function of the Department of Transportation's electronic Docket Management System (DMS) web page <http://dms.dot.gov/ search>.

(2) On the search page, type in the last four digits of the docket number shown at the beginning of this document. Click on "search."

(3) On the next page, which contains the docket summary information, click on the item you want to see.

You can also get an electronic copy using the Internet through the FAA's web page at <http://www.faa.gov/avr/arm/nprm/nprm.htm> or the *Federal Register*'s web page at <http://www.access.gpo.gov/su_docs/aces/aces140.html>.

You can also get a copy by submitting a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Ave., SW., Washington, DC 20591, or by calling (202) 267-9680. Make sure to identify the docket number or notice number of this rulemaking.



One Manufacturer's Viewpoint

FAA Aviation News was privileged to interview Edward S. Downs, President and Chief Executive Officer, SkyStar Aircraft Corporation, at the 2002 Air Sports Expo. SkyStar Aircraft manufactures the very popular *Kitfox*™ series of airplanes. At the Expo, SkyStar was displaying the *Kitfox*™ Lite II. The model seems to fit nicely into the proposed Light-Sport rulemaking effort.

Downs said SkyStar was formed in 1992 after a private owner bought the aircraft company and changed its name. Then in January 2000, an employee group bought out the private owner and retained the company's SkyStar name.

Kitfox™ airplanes have been built since 1984. "We have about 18 years experience in building the *Kitfox*™ line of airplanes," he said, "and our new series seven *Kitfox*™ will be a very sophisticated entry into the sport plane market."

When many companies stopped making small general aviation aircraft in the mid-1980's, many people turned to experimental aircraft. As a result, he said, "a lot of people who purchased experimentals have always complained they wanted a simple recreational kind of airplane to fly for fun. One, they would have preferred not to have gone through the building process to get. They would prefer to buy something already manufactured and ready to fly."

He said they are looking for a limited performance fun airplane to fly, and they would have preferred to avoid the expensive pilot's licenses and the bureaucracy of medical certificates and things along those lines to get to fly it. They just wanted an airplane to fly for fun. That is what sport plane is designed to accomplish.

The new proposal will allow an individual to enter aviation for about one third today's cost to get a pilot's license. Plus, it should be possible for someone to be able to buy a ready to fly airplane for conservatively one-third the cost of an existing certified airplane. You can see why we at SkyStar are excited, he said.

Downs said he believes the proposed sport pilot rule may allow general aviation for the first time in many years to compete with other recreational activities.

When asked about the affect of the proposed rule, Downs said, SkyStar has actively been involved in monitoring the progress of the proposed rule. We were not surprised when the rule was published. In our case, we had plans in place based upon what we expected the rule to contain. We were not disappointed. "We don't see problems with the proposed rule. We see challenges," Downs said, "I see the rule as providing a way for people to learn to fly for a lot less money and to allow for a simplified and truly reasonable way of certifying an airplane so these new pilots can get good safe equipment."

H.Dean Chamberlain photo

Edward S. Downs

He said some people think the "Sport Plane" will be a low performance airplane. But he compared the performance of the Kitfox with the numbers of some representative traditional aircraft such as the Piper *Cub*, Aeronca *Champ*, and the early Taylorcrafts. The *Kitfox's*™ numbers are very impressive. In a message, he wrote that, "I think some folks are going to be surprised at the performance improvements we are going to see in the new 'Sport Plane.'"

He said the challenge for the industry's adapting to the proposed rule is meeting new issues such as the consensus airworthiness standards within an industry that for years has had a hard time agreeing on anything. "The idea of self-certifying is a new concept in our segment of the industry. It has been done in other segments, but it is new to us," Downs said. "I think our industry has a lot of learning to go through at this point in time to figure out how are we going to do that," he added.

For more information about *Kitfox*™, you can go to its Internet website at <www.skystar.com>.

Same Old Tune!

by Jim McElvain

What if you went to a dance and the band played the same song over and over again? Pretty darn monotonous, wouldn't you say? Well, here comes my monotonous speech about general aviation accidents and incidents.

Over the last few decades three areas have continued to dominate the probable cause determination for accidents and incidents. By far, most accidents occur during the takeoff and landing phases of flight. Now that makes sense, since that is the time when you are close to the "hard" stuff and at minimum airspeed. With a little luck, an airplane will virtually fly itself off the ground, but it usually involves a little more skill to get it back down in one piece. How do we lessen the chance for becoming a takeoff or landing statistic?

Get good instruction, learn to take off and land well, and practice! Because there are so many areas that must be addressed when learning to fly, some suffer. If you did not get really good instruction in landing and taking off, especially when operating with a crosswind, you really should hunt down a seasoned instructor for some dual. Get out with the coach on some testy days, and learn to fly the aircraft to a stop. Too often the accident begins when the wheels touch the runway, and the pilot quits flying. Once you are proficient in taking off and landing in less than ideal conditions, practice to keep the skills sharp. The practice won't do much good though, if you reserve it for cool, clear, calm days only! Once a year, no matter what, get with an instructor to work on getting your airplane off and back on the earth. An excellent way of doing this is participating in the FAA's "WINGS" Program.

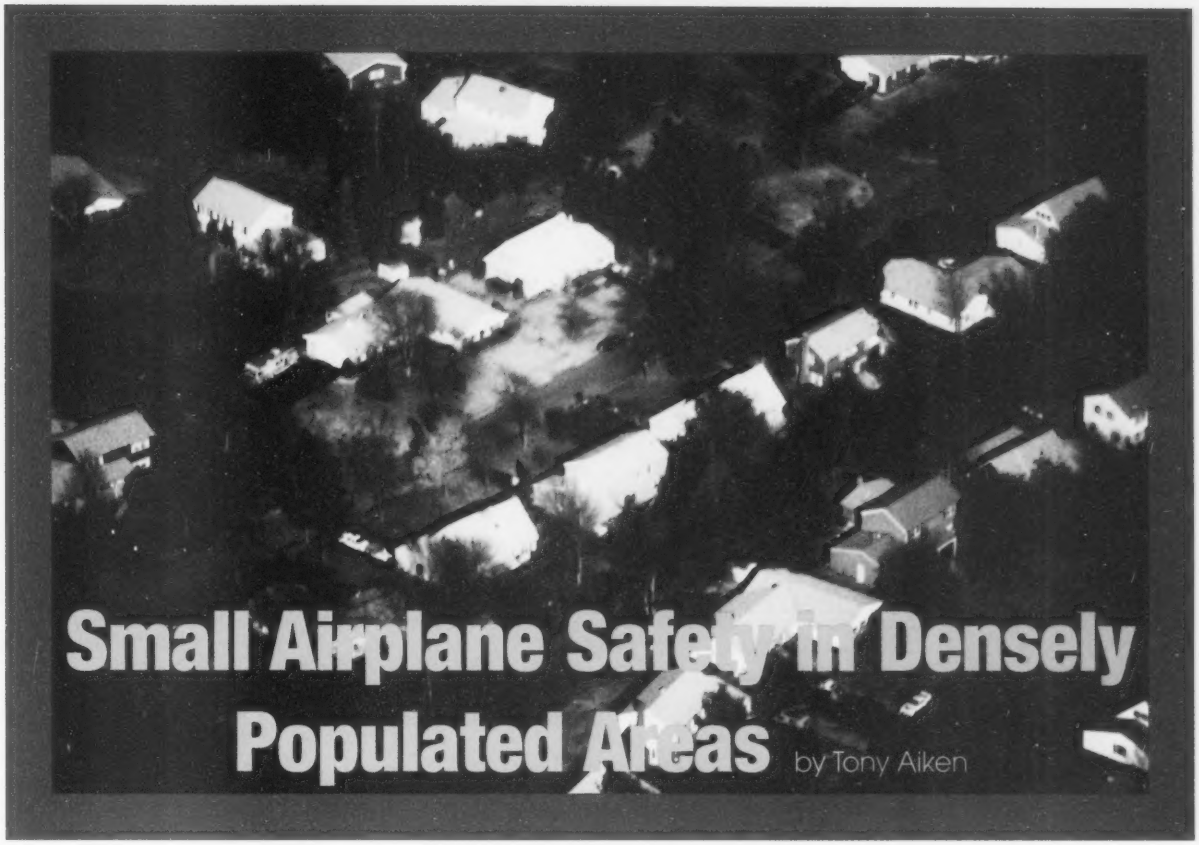
Another area involved with many of the fatal accidents is loss of aircraft control shortly after losing visual reference. Don't confuse this with thunderstorms or other violent weather. It involves the pilot's flying the aircraft into the ground or overstressing the airframe to the point of failure after losing visual reference. A very large percentage of the weather accidents are because VFR pilots fly into low visibility. An IFR rating is some great insurance to protect yourself from this fate, but at least get quality dual instruction in flying by reference to instruments and practice regularly. I can't imagine a worse fate than being in an out of control aircraft, in weather, and not having the skills to use instruments to save yourself!

The last area is maneuvering, and it, too, is involved with many fatal accidents. The maneuvering accident often occurs in the traffic pattern and is the result of poor aircraft coordination and control by the pilot. A stall and spin in the pattern is deadly! Here is another area where a person should get with an instructor to cure weak, bad, or sloppy habits. Steep turns, slow flight, stalls, chandelles, and lazy eight's get us back to "feeling" the aircraft and to making coordinated control inputs to prevent maneuvering accidents. Buzzing and low flying accidents are also grouped into the maneuvering category, but Darwinian theory may take care of that group of pilots.

So, I am bored with the same old song, because on my desk are numerous reports of recent accidents here in the FAA's Southwest Region attributable to the causes above. Now, I don't want you to go out and invent some new ways of crashing just to relieve my boredom! I will make a deal with you. I'll find something else to snivel and cry about if you will keep yourself out of the accident statistics.

Deal?

Jim McElvain is the FAA's Southwest Regional Safety Program Manager. This article appeared in the October 2001 issue of The Southwest Region WINGS newsletter.



Small Airplane Safety in Densely Populated Areas

by Tony Aiken

On November 26, 1999, a Beech *Bonanza* crashed in a residential area in Newark, New Jersey, injuring twenty-two people on the ground, four of them seriously. On December 9, 1999, a similar small aircraft accident occurred in Hasbrouck Heights, New Jersey, when a Beech 58 crashed and inflicted minor injuries to two people on the ground. The fact that both accidents occurred near airports in high density areas in the same state within a 13-day period created some concern that residents of such areas are being exposed to increased danger from small aircraft operations.

The FAA undertook this analysis in order to determine whether concern for the safety of people in high-density areas near airports is well founded. For several reasons, most aircraft accidents causing injuries to people on the ground occur in or near densely populated areas. First, airports and demand for air transportation (i.e., population centers) go hand in hand. Second, most aircraft accidents occur near airports because the most dangerous phases of flight are takeoff and landing. Also, aircraft in distress can be expected to try to reach the closest airport. Further, if all other factors are held constant, the probability of a disabled aircraft striking someone on the ground should be increasing each year as urban sprawl increases. The continued growth of the U.S. population means that aircraft in distress have less chance of coming down, controlled or uncontrolled, in thinly populated rural and forest areas.

The issues in need of examination, therefore, are whether:

1. The two accidents in New Jersey, mentioned earlier, are indicative that such accidents have become more common; and

2. The accidents suggest the need for specific safety recommendations regarding the operation of small aircraft in high-density areas.

Safety Report

An analysis of general aviation accidents in the National Transportation Safety Board's aircraft accident records for the 10-year period from 1990 through 1999 identified 14 accidents in which people on the ground were seriously or fatally injured in airplane accidents. The list does not include accidents that resulted in only minor injuries to people on the ground. Neither does it include accidents in which people were struck by aircraft while on airport runways or taxiways, nor include industrial accidents in which employees on the ground were injured while working beneath an aircraft involved in hanging powerlines, setting towers, or other similar types of activities.

A total of 19 people not aboard aircraft were fatally injured in the 14 accidents over 10 years. An additional seven people received serious injuries and 24 received minor injuries. These totals, however, overstate the safety threat posed by small aircraft operating near airports in densely populated areas. Only 10 of the accidents occurred within consolidated metropolitan statistical areas (CMSAs), as defined by the U.S. Census Bureau. Four of the accidents and six of the 19

fatalities (Waynesboro, PA, Block Island, RI; West Point, VA; and Somers, NY) occurred outside of such areas in relatively low-density population areas. One of the four accidents involved injuries to boaters, a second involved an aborted water landing, and a third resulted from a skydiving accident in a rural area.

Weather was a factor in only three of the 14 accidents. Engine and mechanical failures were a factor in at least seven of the 14.

Table 1 tallies the accidents by year and compares the yearly totals with total general aviation accidents and hours of operation in the corresponding years. The data shows that accidents causing injury to people on the ground averaged seven tenths of one percent of all GA accidents during the 10-year period. The average ground injury accident rate was less than .06 per million flight hours. There does not appear to be any meaningful trend in the accident rate during the period, and trend analysis is made more difficult given the relatively small number of ground injury accidents each year. Nevertheless, there is nothing apparently alarming about the number of such accidents in recent years.

Further, given that the U.S. population grew by 10 percent during the 10-year period without causing a noticeable increase in ground injury accidents or accident rates, it seems reasonable to conclude that such accidents pose no more threat to people residing, working, or traveling near airports in densely populated areas than they did 10 years ago.

Conclusion:

The study findings do not support the need for special safety precautions for small aircraft that take off or land in densely populated areas. There were 10 small aircraft accidents in the 10-year study period causing serious and/or fatal injuries to people on the ground in CMSA's. This amounted to one accident per 25.5 million flight hours. Though tragic, fatal and serious ground injury accidents remain a very rare event.

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This Safety Issue Analysis was prepared by Tony Aiken, formerly of the FAA's Safety Analysis Branch, Office of Accident Investigation.

Table 1

Year	Accidents with Ground Injuries	Total General Aviation (GA) Accidents	Share of GA Accidents Involving Ground Injuries	Total GA Flight Hours (Millions)	Accidents with Ground Injuries per Million Flight Hours
1990	1	2215	0.00045	28.5	0.035
1991	1	2176	0.00046	27.7	0.036
1992	0	2073	0.00000	24.8	0.000
1993	0	2038	0.00000	22.8	0.000
1994	3	1995	0.00150	22.2	0.135
1995	5	2053	0.00244	24.9	0.201
1996	1	1908	0.00052	24.9	0.040
1997	0	1855	0.00000	25.5	0.000
1998	2	1910	0.00105	26.8	0.075
1999	1	1899	0.00053	27.1	0.037
Total	14	20122	0.00070	255.2	0.055

The "Dirty Harry" Principle

by Paul H. Davis

There's a line from an old "Dirty Harry" movie—I'm sure you know the one I'm talking about—where Clint Eastwood, as Inspector Harry Callahan, makes the now famous assertion that "a man has got to know his limitations." Well, nowhere is that concept truer than in general aviation.

The secret to avoiding an aircraft accident is knowing what and where those "limitations" are and knowing how not to exceed them. For every flight there is a LINE that when crossed may result in an aircraft mishap. I say "may" because sometimes we cross that line and then retreat behind it in time to avoid the mishap, or maybe we're just fortunate enough to wind up wandering back behind the line; but the potential for a mishap is still there.

There are three major elements for each flight: the pilot, the aircraft, and the environment. The first two of these are subject to limitations. The third usually imposes limitations on the other two. Every year hundreds of aircraft accidents occur simply because the pilot chose to, or inadvertently exceeded, these limitations. What might cause a pilot to do this? Let's look at a few reasons.

First off, many pilots either don't know, or have forgotten, the limitations of their aircraft and also may ignore pilot limitations for themselves. The regulations require that aircraft operating limitations be carried on board the aircraft, but how many general aviation (non-part 121 or 135) pilots regularly take time to refresh themselves with this information? Do you know all the applicable speeds for the aircraft that you fly? When was the last time you went out and practiced doing various types of stalls? How about the maneuvering speed for your aircraft or the weight and balance limitations? Do you remember how much usable fuel your aircraft is capable of carrying or what the ACTUAL fuel burn rate of the aircraft engine is? When was the last time you went out and practiced ground reference maneuvers or short and soft-field takeoffs and landings with a CFI (if you're rusty, of course) except maybe during a flight review? Now are you starting to get the picture? Many pilots just don't do much training until it becomes mandatory, but why?

One of the reasons I have found for pilots avoiding regular training is that some feel like they just don't need it to be safe pilots. Others are quite

content to simply fly from point A to point B and may actually be uncomfortable performing training maneuvers. The bad thing about this is that the less training maneuvers are practiced, the more uncomfortable they may become because of lack of proficiency. Many pilots who get to this point, and I never have been able to figure this one out, are very reluctant to contact a flight instructor for some good refresher training.

Then, there is the weather. This is an area of flying where it is very easy to exceed limitations. If you don't believe it, check out the National Transportation Safety Board (NTSB) aircraft accident report pages. They're chock full of mishaps that occurred because the pilot either didn't know or chose to exceed environmental limitations. Continued VFR into IFR conditions remains one of the leading causes of general aviation accidents. What causes pilots to exceed weather limitations? Well, sometimes it's the need to be at a certain place at a certain time, or maybe the pilot feels pressure to make the trip anyway because of the desire to not look bad in front of passengers. You can be assured that whatever the reason, in retrospect, it's not worth dying for, yet these types of accidents continue to occur all too frequently. There are plenty of other reasons that pilots exceed limitations. Remember those five hazardous attitudes: Macho, Anti-authority, Invulnerable, Resigned, and Implusive. You can be sure that these have a pretty big influence on pilot decision making and have been responsible for more than a few mishaps.

So what can we do to stack the deck in our favor. The best place to start is with a "Personal Minimums Checklist" (PMC). As far as I'm concerned it's one of the best concepts the FAA ever came up with. The Personal Minimums Checklist helps pilots to assess their piloting skills and piloting resources to determine if they are properly trained and equipped to make any flight under given conditions.

The pilot should also set up a personal training program or agenda with the aid of a local CFI/Safety Counselor. Most CFI's and pilot examiners that I know are available for any questions or training concerns a pilot may have. They would be more than happy to sit down and help set up a personal training agenda. Most airlines mandate training programs for their pilots at least semi-annually. What makes us (general aviation) think we need regular training any less than they do? If you have an opportunity to attend Cockpit Resource Management (CRM) training and hazard awareness training, then by all means do so. If there are no such programs available to you, call your local FSDO Safety Program Manager or Aviation Safety Counselor and set up a program. They will be more than willing to accommodate the pilots at your airport.

Analyze yourself, the airplane, and the environment, thoroughly. Find out where that limitations line is and then make sure you are operating comfortably behind it at all times. I've been criticized more than one time for repeatedly "what ifing" a situation, but that's all right, because "what ifing" has ultimately saved me more than a little bit of grief quite a few times, and I'm sure even saved my life somewhere along the way.

One other thing I need to mention. Over the years I've learned that we sometimes exceed our limitations because we don't want to disappoint our passengers. We all know what happens when we meet our friends or loved ones at the airport on a beautiful spring day for an enjoyable sightseeing flight only to find: a puddle of oil under the airplane, a dead battery, or broken starter. The urge to replenish the oil, jumpstart, or handprop the airplane is overwhelming. Don't do it! Call the owner or local mechanic and have the airplane fixed properly. Your PMC should have stopped you right away, along with Federal Aviation Regulation Part 91.7 (Civil Aircraft Airworthiness).

What about the unforecast weather that moves in when the original forecast called for "clear and a million?" I have found the best ways to deal with this situation is to sit down well before the flight and incorporate my forecast weather limits into the Personal Minimums Checklist. In other words, I draw my limitations line and then with feet firmly planted on the ground (usually the day before the flight) I inform my passengers as to conditions I will and will not accept as being satisfactory for the flight. A good example of this is the fact that I set wind gust limitations for each airplane that I fly. I might set a higher wind gust limit for a larger aircraft that I know will accept the higher gust factor more comfortably, especially when I am flying near mountainous terrain. I also review mountain flying techniques for that area and am well familiar with all the local terrain features and hazards well before I make the flight. I have found that passengers respond to this method very well and are much less disappointed and more understanding when they know ahead of time that you are adhering to your PMC and have their safety and well-being at heart. It also lends credibility to your being a safe pilot for those who have the opportunity to fly with you.

The FAA has a form for the PMC that you can download right off the Internet or check with your local FSDO and the Safety Program Manager will be happy to share copies with you. While you're at it, be sure to attend local FAA sponsored safety meetings and "WINGS" seminars at your airport. If your airport is not having any, call the FSDO Safety Program Manager and ask to be included on their Aviation Safety Meeting Schedule.

Remember, the more you practice good risk assessment with your PMC, the better you will become at learning all your limitations. You will become more confident and better at making good decisions and that friends and fellow pilots will make the skies safer for everybody.

Happy Flying.

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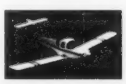
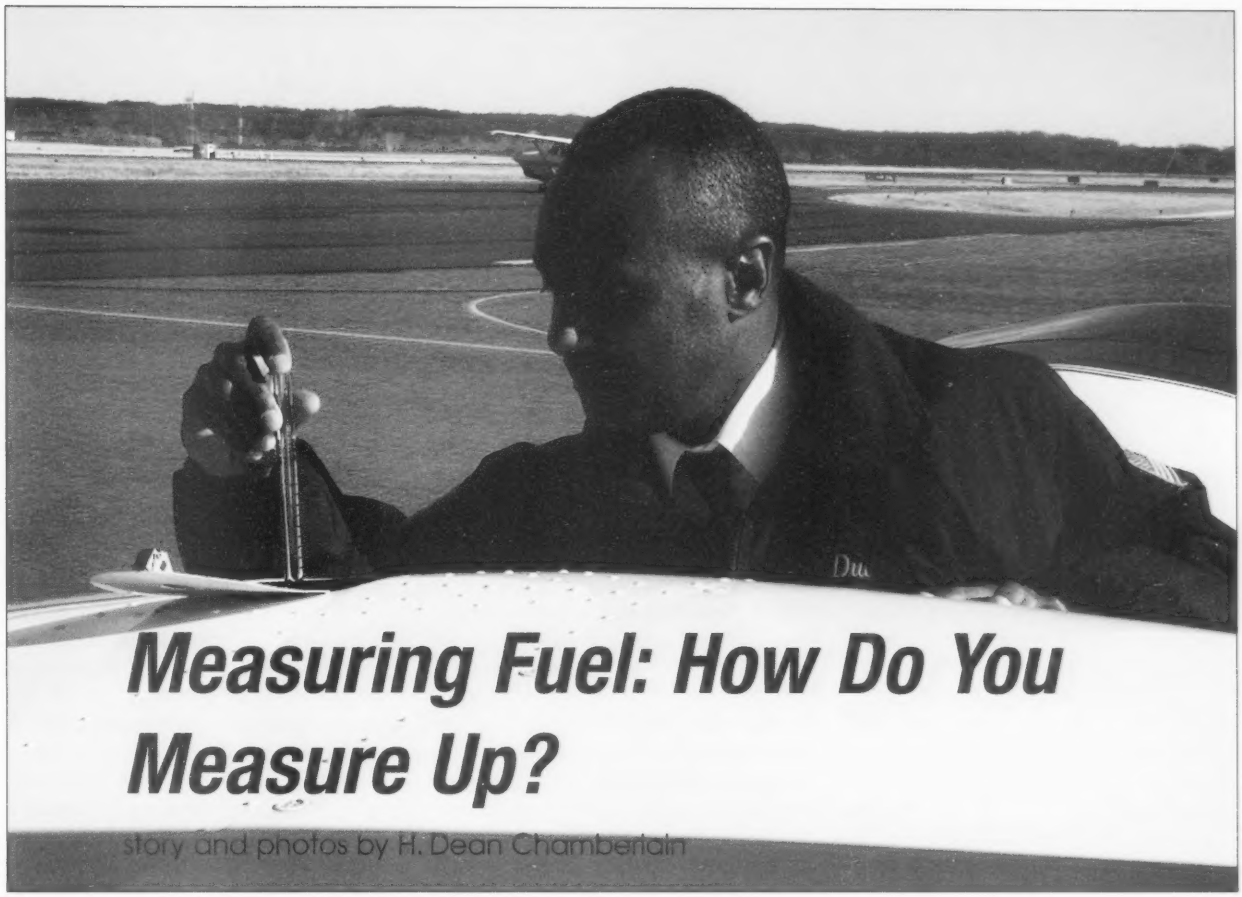
Paul H. Davis is with the U.S. Coast Guard, but is an FAA Aviation Safety Counselor in Alaska. He is a commercial pilot with instrument, Multi-engine, Single-engine, and CFI ratings.





Measuring Fuel: How Do You Measure Up?

story and photos by H. Dean Chamberlain

Pictured above is Flight Instructor Benyan Negussie of Dulles Aviation, Manassas, VA.

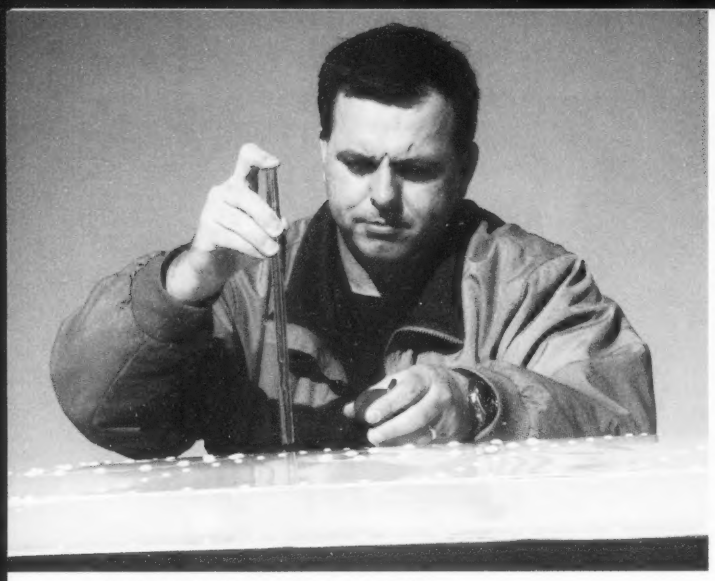
A while ago, the Short Wing Piper Club's Internet chatroom had an interesting discussion about how some of the members checked fuel quantity. Some used wooden sticks or dowels to measure (dip) their tanks. Others used pipettes to measure the fuel level. Pipettes are narrow diameter tubes used to collect fluid either by suction or by being inserted into a liquid and then closing the upper end of the tube to retain the fluid. In the case of measuring fuel, one end of the tube is inserted vertically to the bottom of the tank, and the open end is blocked with a finger so that the tube retains the amount of fuel that corresponds to the level of fuel in the tank.

Some commercial aircraft fuel measuring tubes have been calibrated for special aircraft and their respective size tanks. For example, there are calibrated pipettes for the Cessna 182 with standard tanks and another for the C 182 with long-range tanks. That same company also makes a generic tube with a corresponding chart that pilots or owners can calibrate to their specific aircraft.

Some Club members used their fingers or just looked into the tanks to see if they were full. Some trust their fuel gauges. Others check their fuel level and keep good records of their aircraft's fuel burn per flight hour. They base their flight planning on both a known fuel quantity and engine run time.

What made the discussion interesting were the possible errors and limitations of the various methods. For example, many of us have flown aircraft were a wooden stick was used to measure fuel level. The technique is simple. Take the "calibrated" fuel stick, stick it in the tank, and rapidly remove it and note the wet area. The assumption is the height of the wet area corresponds to the depth of the fuel. If the stick has been properly calibrated and marked either in inches or gallons, the data can be used to figure the amount of fuel in the tank. Sounds simple enough. But wait, as pointed out in the chatroom, what happens if the wing rocks during the test? Do you get an accurate test? What if the fuel is sloshing in the tank? Is that test valid? Or what if the stick is absorbent and the fuel level indicated on the stick is higher than the level in the tank because of capillary action? What seemed so simple a concept has now become suspect.

A common problem pointed out by one person applies to both sticks and pipettes is whether the stick or pipette was inserted vertically in the



James Hatfield measures fuel quantity.

tank and did the stick or tube in fact go all the way to the bottom of the tank. A problem unique to the pipette is the proper way to read the tube. For example, liquids in such tubes are subject to gravity. Some liquids will form a convex surface while other liquids will form a concave surface. Then the question becomes where is the actual level that corresponds to the level in the tank? In some cases, the manufacturer's directions tell how to read the tube.

Although such attention to detail may seem trivial to some people, one must consider the design of some fuel tanks. In a perfectly square tank, the fuel is proportional to the depth. In a long, wide tank with minimal depth, a small error in reading the fluid level can make a significant difference in the quantity in the tank over such a wide surface area. The same is true of not holding the measuring device vertical.

As you can see, how one takes the sample is as important as how one reads the sample.

Some tanks have tabs installed by the manufacturer that indicate a certain fuel level. In such cases, one fuels to the tab for a certain level of fuel. The question here is if the wings were perfectly level at the time of fueling.

Then there is the question of cross-feeding fuel tanks and uneven fuel burn. Some aircraft have fuel selector values with only a right or left tank selector value. The selector is either "on" one of the tanks or it is in the "off" position. This is the simplest system. Some aircraft have, in addition to a "left," "right," or "off" position, a "both" position. When fueling or measuring fuel in the "both" position, if the wings are not perfectly level, there is the risk of fuel from one tank transferring to the "lower" tank. This can result in an erroneous fuel reading. To prevent this problem, one can make sure the fuel selector switch is not in the "both" position when fueling or measuring the fuel level.

In aircraft with multiple or complex fuel systems, the pilot must understand the overall system to avoid any potential problems. For example, does a wing tip tank fill a main tank? Or does a main tank fill a header tank? Such questions determine how much fuel is onboard and how is it used.

Knowing a complex system's design and fuel flow determines how much fuel is available for use. The only thing worse than running out of fuel is running out of fuel and having an accident with fuel in the tanks because you did not know how to access it or control it. One is the result of bad planning. The other is not knowing your aircraft's systems. Both can be deadly.

So, why did we have this brief discussion about fuel management? The reason is contained in 14 Code of Federal Regulations (CFR) §23.1337(b), Powerplant instruments installation. It reads:

> (b) Fuel quantity indication. There must be a means to indicate to the flightcrew members the quantity of usable fuel in each tank during flight. An indicator calibrated in appropriate units and clearly marked to indicate those units must be used. In addition:
>
> (1) Each fuel quantity indicator must be calibrated to read "zero" during level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply determined under 14 CFR §23.959(a);
>
> (2) Each exposed sight gauge used as a fuel quantity indicator must be protected against damage;
>
> (3) Each sight gauge that forms a trap in which water can collect and freeze must have means to allow drainage on the ground;
>
> (4) There must be a means to indicate the amount of usable fuel in each tank when the airplane is on the ground (such as by a stick gauge);
>
> (5) Tanks with interconnected outlets and airspaces may be considered as one tank and need not have separate indicators; and
>
> (6) No fuel quantity indicator is required for an auxiliary tank that is used only to transfer fuel to other tanks if the relative size of the tank, the rate of fuel transfer, and operating instructions are adequate to—
>
> (i) Guard against overflow; and
>
> (ii) Give the flight crewmembers prompt warning if transfer is not proceeding as planned.

As you can see, the regulations only require that the aircraft fuel gauge read "zero" during level flight when the quantity of fuel remaining in the tank is equal to the unusable fuel supply determined under 14 CFR §23.959(a). Therefore, the gauge cannot be depended upon for checking the fuel quantity in a tank. This is especially true of the smaller, less sophisticated general aviation aircraft. Visual or physical checking or both are the only safe means of determining the actual quantity of fuel onboard such aircraft.

How do you measure fuel? Do you measure up?

English Language Proficiency

by Bob Hall

For many years, the International Civil Aeronautics Organization (ICAO) has designated English as the language for air traffic communications between flight crews and air traffic controllers. It is a Recommended Practice in circumstances where the parties do not share a language. What does speaking English have to do with runway incursions? In 1998 the ICAO assembly recognized inadequate English proficiency among flight crews and controllers as a contributing factor in aviation accidents. It also directed the ICAO's Air Navigation Commission (ANC) to strengthen the provisions for the use of English in aeronautical radiotelephony (air traffic communications) in Annex 1 - Personnel Licensing and Annex 10 - Aeronautical Telecommunications. (An Annex is ICAO's version of a Federal aviation regulation part.)

In March 1999, the ANC established a study group to assist the Secretariat in carrying out a comprehensive review of the existing provisions concerning all aspects of aeronautical radiotelephony communications. The group was to establish standardized testing requirements and minimum English language proficiency levels. This study group became known as the Proficiency Requirements in Common English Study Group (PRICESG.) Delegations from English speaking and non-English speaking countries from around the world participated in the Study Group. Drazen Gardilcic, Acting Manager, FAA's International Air Traffic Staff, heads the U.S. delegation. Other FAA representatives include individuals from International Aviation, Flight Standards, the National Runway Safety Office, and two linguistic consultants.

The PRICESG recommended proposed Standards for Annexes 1 and 10. Additionally, to facilitate compliance with the English Language Proficiency Standards, the Study Group recommended supporting organizational Standards for Annexes 6 – Operation of Aircraft, and 11 – Air Traffic Services. These recommendations were based on the combined linguistic and operational experience of the group's members and a number of established English language proficiency programs including a study commissioned by FAA in 1998. The FAA study was conducted by the Human Resources Research Organization (HumRRO) and the Defense Language Institute English Language Center (DLIELC) to "determine the minimally acceptable level of English language proficiency required in the control of international air traffic." This study concluded that the minimum level of English proficiency for air traffic communications to be a "2" on the Interagency Language Roundtable scale for both speaking ability and listening comprehension.

In November 2001, the ANC carried out a preliminary review of proposals and authorized their transmittal to Contracting States (countries) and appropriate international organizations for comments. The goal is to have the Standards published in 2003, with an effective date of 2008. The five-year transition is to allow States and, in turn, pilots and controllers sufficient time to acquire the proficiency required to comply with the set Standard. The planning, resources, and implementation requirements of such a comprehensive worldwide training and testing program are, in a word, enormous.

In the meantime, during 2000, Runway Safety Workshops were held in each of the FAA regions. These workshops determined the lack of English language proficiency of non-native English speaking pilots to be a causal factor in runway incursions. In January 2001, the National Runway Safety Office formed a work group. Its goal was to establish guidance for inspectors to use in determining the English proficiency of non-native English speaking applicants for an U. S. Pilot certificate. The Pilot English Competency Work Group (PECWG) was established with representatives from Flight Standards, Air Traffic, and linguistic experts. The group developed a proposed Advisory Circular (AC) that provides detailed guidance to inspectors on the required level of proficiency and in determining the applicant's ability to understand and adhere to air traffic control clearances. The AC is currently in the final stages of review and comment.

To complement the Advisory Circular, the DLIELC produced a training tape for inspectors. This tape contains actual interviews with two English language students from Language Center. Both speaking English, one student demonstrates the required level of proficiency, while the other student does not demonstrate the required level of proficiency. DLIELC will include guidance material in the tape to explain what is being demonstrated by the interviewee. The tape was scheduled for distribution to Flight Standards District Offices the beginning of March.

RUNWAY SAFETY CORNER

It is significant that the FAA has, through the Human Resources Research Organization's study, developed a specific level of proficiency for air traffic communications while ICAO is establishing a required level of English proficiency. Thus, the FAA is in the process of establishing a defined level of proficiency that complies with the ICAO Standards and the recommendations of its own study. An Oral Proficiency Interview, conducted by trained professionals, is necessary to determine the English proficiency of an applicant. A background in linguistics or the teaching of a language is a prerequisite for a language rater. Most inspectors do not possess these backgrounds. Therefore, to meet the demands for testing, the FAA is currently reviewing the feasibility of contracting with DLIELC, as additional demands for proficiency testing are anticipated with the publication of the ICAO Standards. Currently, the FAA issues between 12,000 and 15,000 pilot certificates to non-native English speaking pilots annually.

Flight Standards, with the acknowledgement of ICAO, has begun the process of briefing the foreign civil aeronautics authorities and foreign operators that fly into the U.S. on the proposed ICAO Standards. Initial efforts in Mexico have been well received with the DGAC (the Mexican Civil Aeronautics Authority) and the carriers internal English language proficiency policies and training programs are now being developed. The FAA is also working with DLIELC to develop an assistance package to help those countries that request assistance.

The establishment of an international and domestic standard for English proficiency will greatly enhance aviation safety. The opportunity for a cooperative strategy that through harmonized requirements and mutually supportive process will go a long way toward alleviating a significant safety problem. Improved aeronautical radiotelephony in both the domestic and international domains and the implementation of cohesive qualifications gives promise of reducing air safety incidents both in controlled airspace and on active runways throughout the world. History has too often shown that a lack of effective communication between flight crews and air traffic controllers can have disastrous results.

Bob Hall is an Aviation Safety Inspector, International Operations, and led the Runway Safety Office's Pilot English Competency Work Group. He would like to acknowledge the significant contributions made to the PRICESG and PECWG by the following individuals: Frank Peluso, International Aviation, Frank Sweeney, System Manager, LAX ATCT, and our consultants, Dr.Marjo Mitsutomi, Professor of Linguistics, University of the Redlands, CA, and Bob Chatham, DLIELC.

H.Dean Chamberlain photo

Michael L. Henry (L) receives the Soaring Society of America's Exceptional Achievement Award from Tim Welles, Chairman of the Board at the 34th SSA Awards Banquet in Ontario California on February 9. The award recognizes Henry's role after the September 11 attacks on the World Trade Center and the Pentagon in working with the Soaring Society to help restore glider flights in the National Air Space. Henry is the Assistant Division Manager of the General Aviation and Commercial Division, Flight Standards Service, in Washington DC. Henry worked closely with the various federal agencies in Washington to help reopen the airspace to general aviation after it was closed following the attacks.

Diabetes: When Your Blood Sugar Takes Off

by Glenn R. Stoutt, Jr., MD

The purpose of this article is not how to treat diabetes once it has been diagnosed. We need to learn how best to prevent the development of type 2 diabetes.-Author's Note

Of the estimated 16 million people with diabetes in the United States, over five million are still undiagnosed with this (like hypertension) "silent killer." It is the seventh leading cause of death.

Diabetes simply means that your blood sugar is too high. All cells in our body use sugar (as glucose) for fuel. This sugar is made from most of the foods we eat, especially carbohydrates. Before glucose gets into the cells, the hormone insulin—made in the pancreas—must be present. Otherwise the glucose levels rise in our blood, depriving our body of essential fuel. If a high blood sugar persists, the tiny arteries throughout all tissues become weakened and clogged. The blood flow causes irreparable damage to vital structures such as our nerves (neuropathy), heart, brain, eyes, gums, teeth, and kidneys. Diabetes is a leading cause of stroke, heart attack, kidney failure, blindness (the leading cause of blindness in ages 20-70), impotence, gangrene and amputation. The grim fact is that this damage is mostly irreversible.

Over 2,000 new cases are diagnosed each day; however, much can be done both to delay and prevent the development of the most common type of diabetes, type 2, that has reached epidemic proportions in the last decade.

There are two main types of diabetes

- Type 1 diabetes — Formerly called "juvenile" diabetes because it affects mostly children and young adults. It is probably an auto-immune disease, often following a viral infection, and there is no evidence that it is increasing. Patients need insulin for life, and complications are common after a few decades. Insulin production is greatly reduced or absent. Type 1 diabetes accounts for five to10% of all cases.
- Type 2 diabetes — Accounts for 90 to 95% of all diabetes. Glucose is produced in normal or even high amounts by the pancreas, but the cells in the body do not respond to it well; they have become "insulin resistant." Most cases of type 2 diabetes have developed in middle age and beyond and it was called, up until now, "maturity onset diabetes." Alarmingly, there is presently an epidemic rise in type 2 diabetes in much younger age groups. Pediatricians are shocked to see young children develop this type, almost unheard of a decade ago. Our kids are becoming chubby (or downright fat) and are sedentary, spending much of their time with TV and computer games. Physicians are seeing the biggest increase—of at least 50 percent—in people in their 30s and 40s.

Symptoms of Diabetes

The "big three" are: increased thirst and urination (water is required to dilute the excess sugar spilled into the urine), plus loss of weight despite being hungry. Other symptoms are: blurred vision, fatigue, headache, irritability, tingling or numb hands and feet, and cuts and sores that do not heal.

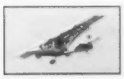
Many factors, especially genetic (more prevalent in first-degree relatives), are also involved. Diabetes is more common in Hispanics and African Americans. The main thing to consider now is this: Obesity has the same relationship to diabetes that smoking has to lung cancer. Lack of exercise also has a strong relationship to the development of type 2 diabetes. We are a nation of obese (at least 20 percent above your ideal body weight), inactive people. Almost a third of Americans get no regular exercise whatsoever.

The purpose of this article is not how to treat diabetes once it has been diagnosed. A team of physicians, nurses, dietitians, and diabetes-education specialists must guide this lifelong, complicated management. We need to learn how best to prevent the development of type 2 diabetes.

Here is an easy way to understand the basics of how type 2 diabetes develops:

The pancreas has just so much insulin it can produce. Say the standard 150-pound (70 kilogram) man is doing just fine controlling his blood sugar for a number of years. If he balloons his weight up to 212 pounds, his metabolism becomes overloaded. Maybe he can handle a meal of 700 calories, but a huge meal of 1,300 calories followed by a heavy, sugary dessert puts a heavy strain on his insulin production. If this pattern continues, eventually "fatigue" sets in and the cells "stall" and no longer respond to insulin—they become "insulin resistant." Without insulin, cells are starved for sugar, blood sugar rises, and full-blown diabetes develops.

This same man may easily handle a well-balanced meal of 500 calories, but a jolt of 500 calories of a sugary meal causes a surge of insulin at-



tempting to lower the blood sugar spike. By well-balanced, we mean in the proportions recommended by the Food Guide Pyramid.

Too much attention has been given to the glycemic index. This is a measure of how rapidly some carbohydrates are absorbed, compared with pure glucose. The higher the index, the faster the food is absorbed. Some examples are refined white bread, mashed potatoes, white rice, cornflakes, pasta, carrots, and bananas. A meal heavily loaded with high-glycemic foods certainly puts stress on the pancreas, but the concept is not of real practical value. All carbohydrates are eventually changed to glucose. There is no problem if high-glycemic foods are only a part of an otherwise well-balanced meal. No one has made a "fatty index" and listed lard, butter, and gravy as high fat foods. The main point is to eat reasonable, well-proportioned meals. So, don't expect the pancreas to function for a long time overloaded. It does not like heavy lifting.

Table 1 shows a sound meal plan for this 150-pound man to maintain his weight (roughly 2,200 calories) or to lose weight (1,500 calories) and at the same time to utilize insulin sensibly. (This same diet would work for just about any medical condition, such as coronary heart disease). It is an excellent plan for anyone wanting to lose weight safely. The calories are only estimates—no one counts calories meticulously.

With both of these diet plans, the caloric load is spread out evenly. No periods of ravenous hunger. Good breakfast to start the metabolism. If you are a bit sleepy after lunch, good. Your body is saying "too much." So, maybe just increase the afternoon snack; then you won't be so hungry at supper. (Peanuts are a great snack because they are filling and slowly absorbed.)

All this makes sense. A four-cylinder car can't pull a house trailer. Your mother can't carry a 50-pound bag of potting soil, but she might easily carry a series of 10-pound bags. By the same analogy, your pancreas can't be abused year after year without calling it quits.

The basic plan of preventing and treating diabetes is diet and exercise. Exercise not only burns calories to help with weight reduction, but also makes cells more sensitive to insulin, increasing their ability to use glucose. The ideal is to be "lean and mean." Eighty-five percent of diabetics are overweight. Ten to 15 percent of obese older people will develop diabetes. If you heed the dangers of obesity and how it contributes to the development of type 2 diabetes, you will enjoy a richer, more productive life. An important side effect is that you will probably maintain your medical without any prolonged absence from flying.

Yours for good health and safe flying.

Dr. Stoutt is a partner in the Springs Pediatrics and Aviation Medicine Clinic, Louisville, Ky., and he has been an active AME since 1960. No longer an active pilot, he once held a commercial pilot's license with instrument, multi-engine, and CFI ratings.

Note: This article appeared in the Winter 2000 issue of The Federal Air Surgeon's Medical Bulletin. The views and recommendations made in this article are those of the author and not necessarily those of the FAA.

For More Information

Here are some superb Web sites to complement your knowledge of diabetes, diet, and exercise:

www.diabetes.org (The American Diabetes Association)
www.eatright.org (The American Dietetic Association)
www.physsportsmed.com (The Physician and Sportsmedicine)

Myths About Diabetes:

Sugar causes diabetes. False. Sugar, in an excessive amount with other foods, causes obesity. Obesity is the number one cause of diabetes.

The "diabetic diet." There is no such thing. Diabetics eat the same foods as anyone else. Their diet is just more carefully selected and the meals balanced. Diabetics need not shop in the health food department (whatever this is) in the supermarket.

"Mild diabetes" or "a touch of the sugar." All diabetes is serious. This is like saying a touch of pregnancy.

Diabetics crave sugar. No more so than anyone who has a "sweet tooth."

Diabetics may not have any alcoholic drinks. False. The same rule applies as for all adults: One drink a day for women, two for men. But, not on an empty stomach.

Diets for Weight Loss or Maintenance

Meal	1500 Calorie Diet	2200 Calorie Diet
Breakfast	400	600
Mid-morning snack	100	100
Lunch	400	700
Afternoon snack	100	100
Supper	400	600
Bedtime snack	100	100

Table 1

AIR TRAVEL TIPS FOR PEOPLE WITH DISABILITIES

by FAA Office of Civil Rights

This article is intended to address questions and concerns about the travel of persons with disabilities (PWD) as it relates to airports and airlines. In the aftermath of the terrorist attacks on September 11th, security measures have been heightened for the safety of all. While safety and security are the highest priorities, of equal importance is a smooth and safe flight process for PWD as they move through the aviation system from origin to destination.

None of the new security measures decrease the responsibility of airports and airlines to provide accessible transportation for PWD. However, everyone may experience some inconveniences and delays while the nation adjusts to the new security reality.

Although curbside check-in has been suspended at many airports, Skycaps and other appropriate personnel are available to assist passengers (including at curbside) in transporting luggage and to assist those needing wheelchairs. Additionally, parking restrictions and pedestrian walkway modifications may present temporary difficulties to some travelers with disabilities. PWD should contact their airline and the airport well in advance of arrival to determine what revised arrangements have been made to accommodate their needs and identify any additional assistance needed. Letting the airline and the airport know in advance how they can help you will generally result in a smoother trip.

People who use wheelchairs and other assistive devices may be asked to cooperate in security searches of these devices. Just as there can be no discrimination against people with disabilities, there can be no compromise to the commitment and enforcement of safety and security standards in the aviation community.

Service animals and assistive devices such as walking canes, once inspected to ensure prohibited items are not concealed, are permitted on board an aircraft. Personal wheelchairs and battery-powered scooters may still be used to reach departure gates after they are inspected to ensure that they do not present a security risk.

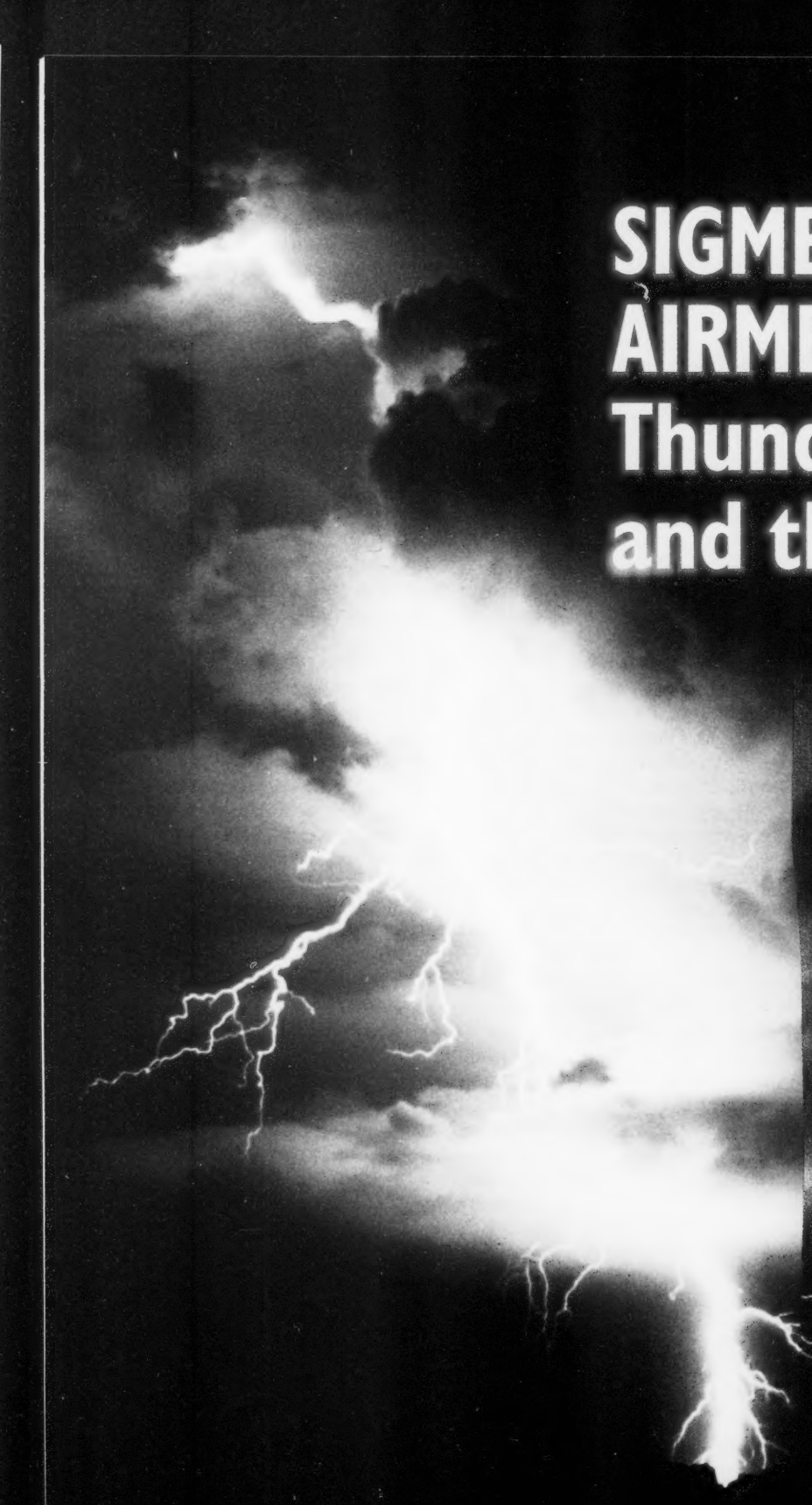
For general information and inquiries on the air traveler with a disability, the following web sites, e-mail addresses, and contacts have been identified:

- For airline or airport problems, contact the Customer Relations or Consumer Affairs office of that airline or airport.
- U.S. Department of Transportation e-mail address <aircon-sumer@ost.dot.gov> to register your concern about airline service when experiencing air travel service problems concerning accommodations or services that must be provided to passengers with disabilities.
- Federal Aviation Administration web site <www.faa.gov/acr/access.htm> for general information for the air traveler with a disability.
- Americans with Disabilities Act (ADA) Information Line of the U.S. Department of Justice regarding general or specific ADA requirements including questions about ADA Standards for Accessible Design. One can obtain free ADA materials or information about filing a complaint. See <www.usdoj.gov/crt/ada/infoline.htm> or call (800) 514-0301(voice) or (800) 514-0383(TDD).
- Violations by private businesses and non-profit service providers (e.g. concessionaires) regarding public accommodations and commercial facilities. See <www.usdoj.gov/crt/ada/enforce.htm>.

While we are hopeful that the new security procedures will not have a negative impact on your flying experience, we realize that things do not always go as planned. As an air traveler with a disability, if you feel that you have been treated in a discriminatory manner and in a way inconsistent with the safe carriage of all passengers, you may file a complaint against the airline or airport owner. Complaints, on disability matters, should be filed with the following:

- Complaints and concerns against airlines regarding discrimination against persons with disabilities in providing air transportation should be directed to: Aviation Consumer Protection Division (C-75), Office of the Assistant General Counsel for Aviation Enforcement and Proceedings, Department of Transportation, 400 7th Street, SW, Room 4107, Washington, DC 20590
- Complaints and concerns against an airport operator/owner regarding discrimination against persons with disabilities in providing services at the airport or in airport programs should be directed to: The Office of Civil Rights, Federal Aviation Administration, Room 1030, 800 Independence Ave., SW, Washington, DC 20591
- Complaints and concerns against privately owned businesses serving the public on the airport property, regarding discrimination against persons with disabilities and, complaints against privately owned airports, on the basis of a disability should be directed to: U.S. Department of Justice, Civil Rights Division, Disability Rights Section, NYAVE, 950 Pennsylvania Ave., NW 20530

We are hopeful this information will assist you in making your travel experience a smooth and enjoyable one. However, should the need arise for reasons noted above, please contact one of the agencies listed for prompt attention to your concern. The FAA continues to be serious about its commitment to fair treatment for all persons using the air transportation system in the United States.



SIGMET's, AIRMET's, Thunderstorms, and the Force

by Jim McElvain

On December 6, 1998 at 0934 Central Standard Time, a Beech 58 (Baron) twin-engine airplane was destroyed upon impact with terrain following an inflight encounter with severe weather while on a localizer instrument approach near Newcastle, Oklahoma. The instrument-rated private pilot, sole occupant of the airplane, was fatally injured. The airplane was owned and operated by the pilot. The airplane was operating in instrument meteorological conditions and an IFR flight plan was filed for the Title 14 Code of Federal Regulations Part 91 personal flight. The cross-country flight originated from the Idabel Airport (F62) near Idabel, Oklahoma, at approximately 0852 with the Max Westheimer Airport (OUN) in Norman, Oklahoma, as its intended destination. OUN is located 152-nautical miles northwest of F62).

At 0915, a Boeing 737 Air Carrier flight from Dallas Love Field Airport (DAL) to Oklahoma City Will Rogers World Airport (OKC) executed a missed approach after encountering

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severe turbulence and wind shear during an instrument approach to runway 35R at OKC. OKC is located 12-nautical miles northwest of OUN. The flight diverted back to DAL due to the weather in the OKC area. The captain stated that the event was prominent at 3,000 feet after the glide slope was captured. The captain further reported that the airspeed fluctuated plus or minus 50 knots. The pilot of the Baron *was advised by air traffic control of the severe turbulence/wind shear encounter reported by the air carrier flight. The* Baron *was in level flight at 4,000 feet, operating in smooth air at that time.*

According to OUN control tower personnel, the pilot established radio contact with them at 0932 while the airplane was inbound for the localizer approach to runway 03 at OUN. About a minute later, the airplane was observed on radar about one mile north of the final approach course. The pilot reported that he was not going to be able to continue the approach. When questioned by the tower about his intentions, the pilot replied, "I am going to stay right here until I get out of some of this." The pilot did not reply to any further radio calls from the tower.

A witness near the accident site observed the airplane descending out of the clouds heading in a westerly direction with a 45-degree nose down attitude. The witness lost sight of the airplane, heard the sound of the ground impact, and soon thereafter heard the sirens from the fire and rescue vehicles.

A review of the McAlester Automated Flight Service Station (AFSS) weather briefings, provided to the pilot of the Baron *at 0727 and 0828, indicated that the AFSS specialists informed the pilot of Convective SIGMET's, AIRMET's, and a Severe Thunderstorm Watch in effect along the route of flight.*

According to the Meteorological Factual Report prepared by the NTSB meteorologist in support of the accident investigation, the surface weather observations from 0800 to 1000 local showed that a northeast-southwest oriented cold front was moving through central Oklahoma in a southeast direction at about 15 knots at the time of the accident. Distinctly different air masses were located on either side of the cold front. The air mass southeast of the front was warm, moist, and unstable with gusty southerly surface winds prevailing through the area. Northwest of the front, temperatures dropped by 10 to 15 degrees Centigrade, and the gusty surface winds veered to the northwest. Scattered moderate to very strong thunderstorms were located along the frontal boundary with the thunderstorm cells generally moving toward the northeast.

An overlay of the ground tracks for the air carrier flight and the Baron *on weather radar plots revealed that both the air carrier's encounter with severe turbulence/wind shear and the* Baron*'s last radar return occurred in the vicinity of the cold frontal boundary, where strong wind shear and severe turbulence were present in the layer between the two air masses.*

Other than the air carrier flight, there were seven additional pilot reports (PIREP) involving turbulence between 0837 and 1040 on the morning of the accident.

The preceding narrative was taken from an actual NTSB accident report.

All of us are required to make important decisions as we exercise the privileges of our airmen's certificates. More than in most other areas of our lives, we pilots have the freedom and the latitude in the regulations to control our destinies, as well as the lives of the passengers who entrust their safety to us. This is a heavy load and must be approached with the greatest of consideration.

Unfortunately, there is an insidious force that works to flaw our rational decision making. I'll use the technical terminology of "it worked last time" to describe the force. Whether it is inadequate preflight planning, pushing a fuel supply, or taking a "look see" at forecast bad weather, the force often starts out weak and allows bad decisions to pass. But with each exposure the force strengthens and further clouds good decision making. Eventually the force demands a high fee and catches the unwary off guard. If a pilot survives the experience, he/she may never allow the force to influence this behavior again.

Years ago, when I was flying for an air taxi company, I had been lulled into a false sense of security when flying into areas of convective activity. Several successful encounters with developing thunderstorms had me feeling pretty bulletproof. Then came a flight back to Wichita Falls, Texas, from Houston. A line of convective activity was forecast to develop along our return leg in the late afternoon. I informed the client of this and advised that I would like to start back as early as possible. But he returned to the airport late and wanted to go to Galveston for seafood before starting home.

By the time we launched for home, the line was no longer just forecast—it was there and waiting! I worked well back to the west of our intended course, and then penetrated what appeared to be a relatively shallow area. I won't give a play by play, but I really did some talking to that old *Seneca*, myself, the man upstairs, and anyone else who would listen! The "it worked last time" force nearly got me! But it didn't and it won't ever get close again, when dealing with avoidable thunderstorms. The experience has helped me steel myself against the force in most other areas as well.

There is no teacher like experience. But, as you have undoubtedly heard, experience often gives the test first and the lesson later. Let's try to turn it around and use the experience and wisdom gathered by others to guide our behavior. It would be a horrible experience to be in the damaged remnants of an aircraft plummeting to earth, with the only excuse for our predicament being, "It worked last time!"

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Jim McElvain is the FAA's Southwest Regional Safely Program Manager. This article appeared in the October 2001 issue of The Southwest Region WINGS newsletter.

by Don Lindsay

Planning an Out

Teach your students to plan for the no-go decision

Over the course of a lifetime, all of us have had to change our plan because of unexpected inclement weather. Whether it was the company picnic, the amusement park, or a scheduled student training flight, we've all been rained out. In those events, how many times did you have a backup plan? You know—did you do something to fill in the scheduled time should the weather change? Or did you just assume all would go well and make no other plans? Most people don't have a Plan B.

Even if you've only been in aviation a short time, you're sure to have seen articles telling you to leave yourself an out during a cross-country flight. All we need to do is have another airport to go to or do the old reliable 180-degree turn when we encounter a weather problem and all will end happily ever after.

Oh, how we all wish that were true. If the pilot population at large was reading these admonitions (and we'll assume they are), why then does the accident rate regarding continued VFR flight into IMC remain at a relatively stable rate?

Perhaps we instructors, who have the responsibility to instill in our students a set of values, can better educate them to make safe decisions even when faced with undue pressure to begin or continue a flight. If we can influence our students' decision-making processes, we'll see that stubborn accident statistics begin to trend downward.

It's possible that we—as instrument-rated pilots ourselves—incorrectly assume our students will learn all about weather and will understand its hazards. Besides, we've given them enough instrument instruction to get them back to VFR conditions. But it's still up to them to make the right decision when the real test comes.

Suppose one of our students has completed training and is now sporting a coveted private pilot ticket. The pilot and a few friends decide to take a flight of about 200 miles to attend a special function. The weather at the departure point is fine and is expected to improve to good VFR in time for the flight's arrival. While it would be prudent to wait a bit and make sure the weather improves as forecast, most of us would figure we could always abort the flight if things don't go well.

The new pilot is faced with a difficult decision. Passengers may try to pressure him into going even though he is still in the decision-making process. Can we make it or can't we? The pilot could have averted it by making alternate plans before the big day, such as advising the passengers that an early start would be beneficial—they could always go by car should the weather be doubtful.

By having an alternate plan at the outset, the pilot has an out before he even goes near the airplane. Likewise, the passengers will be prepped to forgo the flight. The pilot has avoided a decision he may regret later.

Now assume the same pilot is taking some friends on longer flight for a scuba diving excursion. The plan is to leave noon Thursday and arrive at dinnertime. The return flight is scheduled for Sunday afternoon in time for dinner at home. It's too far to drive in the time given, so that's not an option, and no commercial service is available, so they'll have to fly both ways. Just to put more pressure on the new pilot, one of the passengers absolutely must be back on Monday morning for

a very important business meeting, another has to leave for Europe on a business trip at noon, and the third, an attorney, is due in court.

The flight to the destination is clear, and our quartet arrives on time to enjoy their planned activities. They had a great weekend, and, in just a few hours, they'll be home telling family and friends what fun it was.

However, a warm front sporting low visibility has moved itself into their path, and VFR flight through the area is not recommended, even though the forecast was for clear weather. Nonetheless, it should be clear by Monday afternoon.

The pilot has put himself into a bad situation. The weather didn't develop as forecast, and the passengers will probably exert considerable pressure on the new pilot to make an uncomfortable decision. Since the weather is marginal VFR and his passengers must be at their appointments, the pilot would probably make a "go" decision.

Planning ahead would have alleviated much of the pressure on the pilot. He could have informed his passengers well before the flight that they may spend another night or two away from home should weather be a factor—sorry, but that's the way it is. Then the flight could have been set for a time when getting back isn't so important. That way, flying isn't so dangerous and the passenger's lives aren't risked.

What if the pilot made the decision to chance it? After all, his buddies have expressed great confidence in his abilities and just know that he'll make it. The group takes off and, midway into the flight, visibility begins to deteriorate. At cruise speed in today's airplanes, it doesn't take long before the "looking bad up ahead" stage turns into solid IMC.

So the new pilot is in the soup for real with little or no experience in actual conditions, and no one is there to make sure all goes well. Only the pilot knows how perilous the situation has become. Think about the pressure he brought to bear on himself. The worst realization comes shortly after going IMC—he must pull it off because, if he doesn't, he and his friends will become statistics.

Try flying by instruments with this kind of pressure while trying to keep the sweat out of our eyes. Think he'll be able to keep his cool or will confusion set in? This scenario is played for real over and over again in the real world when real people meet a disastrous end.

We have the key to all three scenarios. We can send our students out armed with weapons to help them cope with these situations. We can teach them to plan ahead and avoid pressure situations.

A good time to cover this is when you introduce cross-country flying. Teach your students to expect to make a "no-go" decision and plan ahead for alternate transportation or activities. Teach them to have an "out" even before approaching the airplane. If it's possible, expose them to real instrument conditions. Night flying usually affords such an opportunity. Select dark but clear night, take your students to the darkest area you can find, and put the hood on. Allow them the opportunity to really see what instrument flying is like. Ask them to tune radios, slow down, lower flaps, and other flight-critical tasks. This will be quite a challenge for them at this stage of training. Regardless of how they perform, remind them of the additional pressures involved in a real situation. Remind them the best course of action would have been to not have put themselves in it in the first place.

Sure, using these suggestions may keep your students from enjoying flying now and then. But it will also convince them to plan beyond the "no-go" decision. And for my money, that sure beats becoming a statistic.

This article is reprinted with permission from the September 2001 NAFI Mentor.

CALENDAR OF EVENTS

May 31-June 2, West Coast Fly-In 2002, Columbia Airport, CA

The Bellanca-Champion Club is sponsoring this Fly-In with activities geared towards a mix of flying, eating, and education. Presentations are planned on maintenance, modifications, and flying the various high- and low-wing models. For more information contact Chuck Sandford at (510) 490-2865 or Robert Szego at (518) 731-6800, or visit our web sit at <www.bellanca-championclub.com>.

June 23-25, Airline Suppliers Association (ASA) Annual Conference, Las Vegas, NV

The event will be held at the Four Seasons Resort in Las Vegas. For more information, contact Jeanne Pearsall at (202) 730-0270 or send an e-mail to <conference@airlinesuppliers.com>.

June 25-28, July 9-12, and July 16-19, McCall Mountain/Canyon Flying Seminars,LLC, McCall, ID

FAA WINGS approved instruction in the Idaho backcountry. For information, contact Lori MacNichol or Kathy Crowther at (208) 634-1344 or e-mail to <admin@mountaincanyonflying.com>. (July 22-26 is for returning participants only.)

TWO OF OUR OWN

by Bill O'Brien

Charles Taylor Master Mechanic Award winners Fred Maupin, left, and Leo Weston cut the cake to celebrate a combined century-plus in aviation maintenance.

On December 4, I was sitting in the FAA Headquarters auditorium when promptly at 11 a.m. the lights dimmed and an awards ceremony began. What was different about this award ceremony from hundreds conducted here was that the FAA's Aviation Maintenance Division was honoring two of our own with the most prestigious maintenance award the FAA can present, the Charles Taylor Master Mechanic Award. Our award winners, FAA inspectors Fred Maupin and Leo Weston—looking somewhat pleased and yet puzzled with all the attention—took their seats center stage and smiled back at the 100 plus friends and fellow employees who came to honor them.

FAA Aviation Safety Inspector Fred Maupin received his first airplane ride in 1938 in a Standard, a two seater bi-plane piloted by a Texas barnstormer named Royal Wookchick. That 15-minute ride changed a young boy's life forever. In 1951, 18-year-old Fred landed his first "real" aviation job. He started at Kelly Field (Texas) overhauling engine cylinders for 97 cents an hour, which included a 15 cent night differential. In 1956, Fred graduated from Northrop Aeronautical Institute. In the early sixties, Fred accepted a position with Bell Helicopter as a Field Service Representative and Quality Engineer. Fred was sent to such garden spots as Esfahan, Iran, and Nha Trang, Vietnam. As the Vietnam war came to a close Fred joined Fairchild Swearingen in San Antonio as a Field Service representative and later became the manager of product improvement. In 1986 Fred joined the FAA as a general aviation airworthiness safety inspector in Denver. Fred later worked in San Antonio and Washington, DC, and Albuquerque FSDO. Fred now works as a Partial Program Manager for the MD-80 Fleet at the FAA's certificate managing office for Continental Airlines. In addition, Fred is an excellent public speaker and frequently shares his knowledge of aviation maintenance at FAA sponsored safety meetings.

Mr. Barry Basse, Deputy Manager of the Aircraft Maintenance Division, summed up Inspector Maupin's career with these words: "Mr. Maupin has acquired over the last 50 years technical and regulatory expertise on fixed and rotary wing aircraft. Simply put there is not a mechanic worth his salt on the face of this earth that could not learn a thing or two about aviation maintenance from Inspector Fred Maupin."

Inspector Leo Weston's introduction to aviation began at North Catholic High School in the northeast section of Philadelphia. It was here a priest by the name of Father Harry Minich introduced Leo to the world of aviation, first by teaching him the art of flying and then teaching him the science of maintenance using the school's fleet of two Piper J-3 Cubs. After graduation, Leo enlisted in the Air Force where he served four years as a mechanic and crew chief. He was discharged in 1950 and was called back into the Air Force less than a year later for the Korean conflict. After being honorably discharged for a second time in 1952, Leo went to Spartan School of Aeronautics in Tulsa where he earned his Airframe and Powerplant certificate. After working for Atlantic Aviation in Philadelphia, Leo answered the siren call of the airlines and started work for Pan American as a flight engineer on DC-6, DC-7, and later DC-8 transports running the North Atlantic routes. Because of the chaotic fluctuations with the U.S. economy in those early years of airline expansion, Leo was furloughed for the first time in his career in 1962. He immediately went to work for Overseas Airways where he flew the next 18 months out of New York to Europe

and Africa in DC-7's. Furloughed again, Leo hired on as a FAA Air Carrier Inspector and for four years trained FAA Inspectors to be flight engineers at the FAA Academy in Oklahoma City. In 1968 Leo transferred to the Cleveland General Aviation District Office (GADO) as a Principal Maintenance Inspector. FAA senior management noticed his management skills and in 1969 sent Leo to an FAA area office where he managed the maintenance programs for five FAA field offices.

In 1971 Leo transferred to the International Field Office in New York, where he managed the maintenance side of the Pan American certificate and was in charge of adding the new Boeing 747 jumbo jets to the Pam American Fleet. In 1974 Leo transferred to Washington, DC, where he was first a staff specialist and later a branch manager. From 1989 to 1991 Leo was the acting manager of the Aircraft Maintenance Division, as well as acting Director and Deputy director of Flight Standards, so many times, that even the hired help thought he was promoted to Director. In 1991 Leo became the first Flight Standards' National Resource Specialist (NRS) for airworthiness and for the past 10 years Leo's main duties have revolved around working on harmonization efforts with the JAA and hammering out bilateral agreements.

Mr. Basse ended Leo's biography with a couple of closing thoughts. The first was: In the last 20 years there has not been a major piece of FAA policy or rulemaking dealing with maintenance that did not have Leo's name on the correspondence control grid. The second was: What was not widely known by the aviation industry is the high regard with which he is held by his fellow inspectors. His reputation for excellence is such that on the day Leo retires, every FAA inspector will move up a notch.

I sat there for a moment or two, going over in my mind what had just happened. Two mechanics, who just happen to work for the FAA, earned the prestigious Charles Taylor "Master Mechanic" Award. They were honored for their efforts by senior FAA management, their peers, and their friends. They join 762 other "Master Mechanic" Award winners' names in a leather-bound book located at the entrance to the aircraft maintenance division. The book is there for all to see that they are the best of the best, and they will never be forgotten.

Left to right: Dave Cann, Manager, Continuous Airworthiness Maintenance Division; Master Mechanic Maupin and Weston; James Ballough, Director, Flight Standards Service; and Barry Basse, Acting Assistant Manager, Continuous Airworthiness Maintenance Division.

Criteria for the Charles Taylor Master Mechanic Award

For those who don't know, the award was named after Charles Taylor, the world's first aircraft mechanic. Mr. Taylor worked for the Wright brothers and designed and built the first aircraft engine, using only a lathe, hand tools, and a drill press. His engine weighed 152 pounds and produced 12 horsepower at 1090 rpm. It was Mr. Taylor's engine that helped the Wright brothers make history on December 17, 1903, on a cold and windy hill in North Carolina. Mr. Taylor spent the rest of his life working in aviation. For his great accomplishments and lifetime contributions to aviation, Mr. Taylor was inducted into the Aviation Hall of Fame in Dayton, Ohio in 1965.

FAA's Aircraft Maintenance Division introduced the Charles Taylor Master Mechanic Award on April 23, 1993, to formally recognize the unsung heroes of the aviation maintenance profession. To be eligible for the "Master Mechanic" award the candidate must meet the following criteria:

1. Work for at least a total of 50 years engaged in aviation maintenance
2. Be at least a certificated mechanic or repairman for at least 30 of those years
3. The remaining 20 years may have been served in the military or working as an aviation mechanic in the manufacturing or maintenance industries.
4. Their certificates must have never been revoked
5. The candidate must present three letters of recommendation from certificated mechanics who recommend them for the award
6. Be selected by a committee of his or her peers for the award.

• Logging Time

If a person holds a private pilot certificate or higher with an airplane–single engine land rating, may that person log pilot in command (PIC) time while undergoing training for an Airplane–Multiengine Land rating at the private pilot certification level?

The rule [i.e., §61.51(e)(4)(ii) and (iii)] now provides that a student pilot may log PIC if that pilot has a solo endorsement and is undergoing training for a different certificate or rating. Is a person who holds a private pilot certificate with an airplane–single engine land rating considered a student pilot when seeking an airplane–single engine sea rating? If so, then would a person who holds an airplane–single engine land rating and is undergoing training for an airplane–multiengine land rating or an airplane–single engine sea rating be considered a student pilot?

Also, does "undergoing training" in this context mean dual instruction?

Name Withheld
Via the Internet

It appears that you are confusing the "logging" of PIC time with the "serving" as PIC. To "log" PIC time, a person must meet one of the requirements of §61.51(e). Which means in answering your specific question, you would have had to have been the sole occupant of the aircraft [see §61.51(e)(1)(ii)].

To "serve" as a PIC, in the context of your specific question, you have to meet either subparagraph (1) or (2) or (3) of §61.31(d). As per §61.31(d), it states: "...To serve as the pilot in command of an aircraft, a person must—

(1) Hold the appropriate category, class, and type rating (if a class rating and type rating are required) for the aircraft to be flown;

(2) Be receiving training for the purpose of obtaining an additional pilot certificate and rating that are appropriate to that aircraft, and be under the supervision of an authorized instructor; or

(3) Have received training required by this part that is appropriate to the aircraft category, class, and type rating (if a class or type rating is required) for the aircraft to be flown, and have received the required endorsements from an instructor who is authorized to provide the required endorsements for solo flight in that aircraft."

As per §61.51(e)(1)(ii), in reference to your specific question, the only way you may "log" PIC time is to be "...the sole occupant of the aircraft."

You also asked, "Is a person who holds a private pilot certificate with an airplane–single engine land rating considered a student pilot when seeking an airplane–single engine sea rating?" That person is considered to be a certificated pilot who is seeking an additional aircraft class rating for the airplane–single engine sea rating. And when a person is merely seeking an additional airplane class rating within the Airplane category rating, there is no PIC time required for the rating (see §61.63(c)(4)].

You asked "...would a person who holds an airplane–single engine land rating and is undergoing training for an airplane–multiengine land rating or an airplane–single engine sea rating be considered a student pilot?"

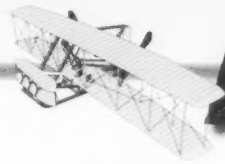
That person is considered to be a certificated pilot who is seeking an additional aircraft class rating for the airplane–multiengine land rating or for the airplane–single engine sea rating. And when a person is merely seeking an additional airplane class rating within the Airplane category rating, there is no PIC time required for the rating (see §61.63(c)(4)].

However, if you want to "log" PIC time when you are only seeking an additional airplane class rating within the Airplane category rating, you must meet one of the provisions of §61.51(e)(1). If you want to "serve" as a PIC when you are seeking an additional airplane class rating within the Airplane category rating, you must have complied with §61.31(d).

The intent of the phrase "undergoing training" in §61.51(d)(4)(iii) or the phrase "receiving training" in §61.31(d)(3) merely means training for the purpose of a certificate or additional rating. The training may be training received from an authorized instructor while the instructor is on board the aircraft. Or the training may be training where the person is solo aboard the aircraft and is under the supervision of an instructor who is supervising the person's training.

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to H. Dean Chamberlain, FORUM Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463; e-mail address:

Dean.Chamberlain@faa.gov



AVNEWS

WEB SITE ASRS UPDATES REPORTING FORMS

The January 2002 issue of Callback from NASA's Aviation Safety Reporting System (ASRS) reports that the ASRS web site <http://asrs.arc.nasa.gov> has been updated with new "interactive" Adobe Acrobat versions of the program's reporting forms. After web site users download a reporting form, they can now fill it out using their computer to enter information. All four ASRS forms have been updated with this new interactive feature. The forms include:

- General Form (for pilots, dispatchers, airport personnel, and others)
- ATC Form (for Air Traffic Controllers)
- Maintenance Form (for aviation maintenance personnel)
- Cabin Crew Form (for airline cabin crew members)

Important Note: The free (noncommercial) version of the Adobe Acrobat Reader does not allow users to "save" information entered into the forms. Once the forms are filled out using the freeware version of the Acrobat Reader, they must be printed to preserve the information entered. Reporters can print a duplicate copy of the report for their own records at this time, also. Completed forms should be mailed to ASRS at the address given on the form.

THREE MARYLAND AIRPORTS REOPENED

FAA has issued an emergency rule that will enable private flying to resume under new strict security procedures at three airports in suburban Maryland outside Washington, DC. The three airports are College Park, Potomac, and Washington Executive/Hyde, which have been largely shut down since September 11, 2001.

"We're taking this action to restore private flying in the Washington metropolitan area as much as possible, while countering possible threats after the September 11th terrorist attacks," FAA Administrator Jane F. Garvey said. "We hope this rule will provide relief to the airport and aircraft operators and other businesses hurt by this ban on flying."

The actual resumption of flying depends on airport managers having approved security procedures in place and on owners or operators of aircraft at the three airports undergoing a security evaluation, including fingerprinting and background checks, and receiving a briefing in new procedures. These new procedures include provisions that pilots obtain a confidential ID code that they will use in filing a required flight plan, that they obtain a specific transponder code before each flight, and that they remain in radio contact with Air Traffic Control. These procedures apply only to aircraft based at the three airports and will be in effect for 60 days during which time they will be evaluated.

The FAA estimates that the cost of complying with the record-keeping requirements of this Special Federal Aviation Regulation (SFAR) will be about $250,000 annually.

The new regulation applies only to these three airports, which are within a 15-mile-radius of the Washington Monument. The FAA will address general aviation or private flying into Washington National Airport, which remains prohibited, in a separate action.

DATA LINK

Pilots are now able to receive up-to-date weather information in the cockpit following the FAA approval for VHF Data Link Mode 2 (VDL-2) avionics to support Flight Information Services Broadcast.

When aircraft are properly equipped, pilots can receive text messages, including routine and special weather reports, Terminal Area Forecasts, and Pilot Reports issued by the FAA or the National Weather Service at no cost. There also will be graphic products such as NEXRAD maps, and other flight information services products available through a subscription service.

"This is the first concerted effort to provide nationwide in-flight weather data," said Gregory Burke, director of the Office of Air Traffic Systems Development. "Now, pilots—general aviation, business, and commercial—will gain a vital safety edge with the enhanced availability of weather information while flying."

The FAA is providing Flight Information Services Data Link service under a government-industry agreement with two vendors, Honeywell (Olathe, KS), which made its system available in January, and ARNAV (Puyallup, WA), whose system is scheduled to come on line later this year. The FAA is providing the spectrum and the vendors are providing the supporting air/ground infrastructure.

To receive the service, users need to purchase two pieces of equipment, a radio receiver that costs about $5,500, and a cockpit multi-function display, about $7,400.

Additional background and information on Flight Information

Services Data Link may be found at the following website: <www.faa.gov/aua/ipt_prod/FISDL/>.

NOAA SATELLITES HELP RESCUE 166 PEOPLE

Thanks to environmental satellites

with rescue tracking capability, the Commerce Department's National Oceanic and Atmospheric Administration (NOAA) and the Russian government saved 166 lives in the U.S. waters and wilderness in 2001. The NOAA satellites are part of an international Search and Rescue Satellite-Aided Tracking Program known as Cospas-Sarsat. The system uses a constellation of satellites in geostationary and polar orbits to detect and locate emergency beacons on vessels and aircraft in distress.

Of the 166 rescues last year, 112 people were saved on the seas, 39 in the Alaska wilderness, and 15 on downed aircraft in states around the country. Downed aircraft incidents included those making emergency landings and those that crashed in bad weather.

"We had an unusual rescue last year with a bear circling a private plane that had crashed in Alaska with two people on board," said Ajay Mehta, manager of NOAA's Sarsat program. "These folks were in a dangerous predicament. Yet, because there was an emergency locator transmitter on board the aircraft that activated upon impact, rescue authorities were able to respond to the distress quickly. On arrival the search and rescue aircraft saw the situation unfolding and dispatched a helicopter to retrieve the occupants and bring them to safety."

NOAA expects the number of worldwide rescues for 2001 will total about 1,100-1,200. Numbers will be available this spring, as countries around the world report their rescues to the international Cospas-Sarsat organization. "The average number of distress alerts continues to rise internationally as more countries sign on to use the advantages and benefits of the Cospas-Sarsat system," said Mehta.

NOAA's Geostationary Operational Environmental Satellites can instantly detect emergency signals. The polar-orbiting satellites in the system detect emergency signals as they circle the Earth from pole to pole. Emergency signals are sent to the U.S. Mission Control Center in Suitland, Md., then automatically sent to rescue forces around the world. Today there are 35 countries participating in the system.

NOAA's National Environmental Satellite, Data, and Information Service is the nation's primary source of operational space-based meteorological and climate data. In addition to search and rescue, NOAA's environmental satellites are used for weather forecasting, climate monitoring, and other environmental applications such as volcanic eruptions, ozone monitoring, sea surface temperature measurements, and wild fire detection.

Learn more about NOAA's role in the Cospas-Sarsat program at <http://www.sarsat.noaa.gov>.

ASTRONAUTS HALL OF FAME

Last November, the Kennedy Space Center Visitor Complex inducted the first class of Shuttle Astronauts into its U.S. Astronaut Hall of Fame. According to Apollo 13 Commander Jim Lovell, "Space Shuttle astronauts are truly unsung heroes of the space program. Many people don't realize that the shuttle was the first vehicle to launch men into space without being previously flight-tested unmanned. It's radically different from the spacecraft used in the Mercury, Gemini, and Apollo missions."

The inductees are:

Robert L. "Bob" Crippen - (Capt. USN) Member of the astronaut support crew for the Skylab 2, 3, and 4 missions, and served in this same capacity for the Apollo-Soyuz Test Project (ASTP) mission. He served as pilot of the first Space Shuttle *Columbia* on STS-1, and was the spacecraft commander on STS-7, STS-41C and STS-41G . Crippen later served as Kennedy Space Center Director.

Joe H. Engle - (Col.USAF) Test pilot in the X-15 research program and flew 16 missions. Commander of one of the two crews that flew the 747/Space Shuttle *Enterprise* approach and landing test flights tests in preparation for the maiden voyage of the space shuttle. He was the back-up commander for STS-1, the first orbital test flight of Space Shuttle *Columbia*, and was spacecraft commander of the second Space Shuttle flight on STS-2 and STS-51-I.

Richard H. "Dick" Truly - (Vice Admiral, USN) Pilot for one of the two-astronaut crews that flew the 747/Space Shuttle *Enterprise* approach and landing test flights tests in preparation for the maiden voyage of the space shuttle. He then was backup pilot for STS-1 and pilot of STS-2. His second flight, STS-8, was as commander of Space Shuttle *Challenger*, the first night launch and landing in the Shuttle program.

Frederick H. "Rick" Hauck - (Capt. USN) Support crew for STS-1; reentry capsule communicator (CAPCOM) for STS-2; project test pilot for development of flight techniques and landing aids in preparation for the first Shuttle night landing. He served as pilot on STS-7, and was the spacecraft commander on STS-51A and STS-26, the first flight to be flown after the *Challenger* accident.

These decorated astronauts will join the ranks of 44 other national heroes like Alan Shepard, John Glenn, Neil Armstrong, Buzz Aldrin, Jim Lovell, and John Young, who have already been enshrined in the Hall of Fame.

Editor's Runway

from the pen of Phyllis-Anne Duncan

RENEWAL

By the time you read this, Spring will already have made its astronomical appearance, though we've had a taste of things to come the last couple of weeks here in DC with balmy temperatures and shirt-sleeve weather. You know, a lot of those days strung in a row where the sky is incredibly blue and void of clouds, and your thoughts naturally turn to the airport and why you're stuck at a desk instead of in the cockpit. Daffodils and crocus have not just peeked from the soil, they're nodding several inches above ground, and home chores and lawn work conspire to keep you from the airport as well. Spring has in most cultures been associated with rebirth and renewal, and you really need to make time to "renew" your acquaintance with aviation.

In addition to the good weather, there are a couple of signs around here that harbinger things to come. Specifically, three local DC airports are finally back in business after being closed since September 11—College Park, Potomac Airfield, and Washington/Hyde Executive Airport. Because of their proximity to the Capitol, White House, and other American landmarks and monuments, these airports were kept closed until a new security program was in place. (See the article on page 27.)

The fact that College Park Airport is open again is historically significant. Its well-substantiated claim is that it is the oldest continuously operating airport in the country. Can it still make that claim after being closed for five months? Absolutely. The local Army and Air Force reservists made certain that a military helicopter landed there every day so that the record remained intact. Bravo for that renewal, though a lot of pilots based at College Park wished they could have done the same.

The reopening of Potomac Airfield holds personal significance for me since that is where I learned to fly and was introduced to aviation by some of the most wonderful people in the world—Larry and Alice DeAngelis (the owners and operators of Professional Flight Service, which used to be based there) and my instructor, Rick Niemara. Sadly, Alice passed away on September 12, and some who knew her say the attacks on America using aircraft were just too much for her to bear. I will always remember her certain and sure voice over the radio. As a student pilot returning from a cross-country, it was a comfort to hear. She will be missed.

Hyde Field is where I flight instructed for a while, and all three airports were places where several FAA employees based their aircraft. They were caught up in the restrictions, too, and had to wait along with everyone else.

Much as when aircraft finally returned to Washington National Airport (though general aviation is still banned from there), it was good to know that planes will be operating at these three airports again. It was as if a collectively held breath were finally released and a little more normalcy returned. (Of course, the people living in the neighborhoods around each of these airports are not so happy as their users, but we all know that story.) Getting back to normal is something we long for, not just for nostalgia but to restore sanity temporarily lost.

So, here in DC in this Spring of renewal, three airports and the Washington Monument reopened in the same weekend, the tourists are starting to come back, and the famous cherry trees are threatening to bud in the warm weather. Spring seems to be taking away the pall that lay over this city, and, quite frankly, I want to and will attribute it to general aviation taking to the skies again nearby. (Hey, I'm also a fiction writer; in my world, aviation is the perfect counterpoint to evil.) Things just feel better. No, not better. Right. Things just feel right again.

With the month of April, I approach a couple of milestones—the 22nd anniversary of my first solo flight and a birthday number that I'd just as soon forget. The reopening of three airports within minutes of the Nation's Capital helped me recall, fondly and as if it were yesterday, another Spring day of renewal in 1980 when N66140 left the earth with just me aboard, a normalcy taken for granted and now restored, a renewal of the connection between history and future, a legacy we can still bequeath.

Now, if I could just skip that particular birthday and the inevitable "over the hill" comments that accompany it.

'Til next time...

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